# THIS WEEK'S National Petroleum NEWS

## Coming Meetings

*American Institute of Mining and Metallurgical Engineers*, Petroleum Division, Houston, Tex., Oct. 2, 3.

*Society of Automotive Engineers*, Book-Cadillac Hotel, Detroit, Mich., Oct. 7, 8.

*Mid-Continent Road Oil Congress*, Tulsa Okla., Oct. 8, 9.

*National Safety Council*, Hotel Stevens, Chicago, Oct. 12 to 16.

*Big Four State Jobbers Association* (Nebraska, Iowa, Kansas and Missouri), Hotel President, Kansas City, Mo., Oct. 27, 28, 29.

*Virginia Oil Men's Association*, and Virginia Sub-Committee Code of Ethics, Patrick Henry Hotel, Roanoke, Va., Oct. 29, 30.

*American Petroleum Institute* annual meeting, Stevens Hotel, Chicago, Nov. 10, 11, 12.

*Third International Conference on Bituminous Coal*, at Carnegie Institute of Technology, Schenley Park, Pittsburgh, Pa., Nov. 16 to 21.

*Indiana Petroleum Association*, Hotel Severin, Indianapolis, Ind., Dec. 2, 3.

*Nebraska Independent Petroleum Marketers Association*, Hotel Paxton, Omaha, Neb., Dec. 9, 10, 11.

*Geological Society of America*, Mayo Hotel, Tulsa, Dec, 28 to 31.


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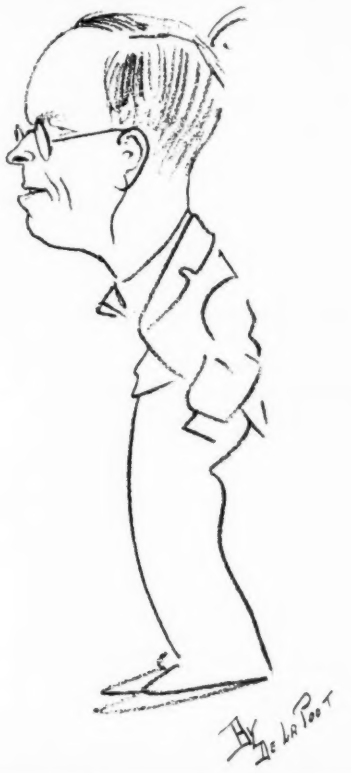
*Photo by Blank-Stoller, Inc.*

LELAND V. STANFORD, vice president and general counsel for the Sinclair Refining Co., while traveling in Europe recently was caught by a well known European caricaturist, whose conception is herewith reproduced. After graduating from Harvard law school in 1906, he went to his father's law firm in Independence, Kans. He joined the Sinclair legal staff in 1916.



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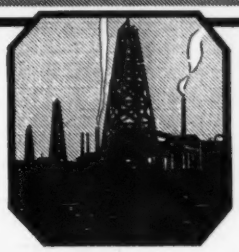

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# Study of Lubricating Oil Markets Advocated to Refiners

ATLANTIC CITY, Sept. 18

THAT the oil industry undertake the regular compiling of statistics as to production and consumption of lubricating oils, by grades as used in the automotive and various industrial fields, was advocated to the National Petroleum Association, in annual meeting at Atlantic City, Sept. 16, 17 and 18.

It was pointed out by John D. Gill, statistician, director of the Atlantic Refining Co., who addressed the association on this subject, that such a procedure would be the first step in building up the oil industry's markets for lubricating oils, which it is now losing in part.

The speaker cited figures to show that the industry now has a normal expectancy of an increase in its lubricating oil markets generally of about 1.5 per cent. Whereas, for example, the industry may expect an increase in motor fuel consumption of 8 per cent, it may anticipate a gain on only about 4 per cent in consumption of automotive lubricants. Against this, consumption of industrial lubricants is now declining at the rate of more than 2 per cent per annum.

Regular compilation of lubricating oil statistics, by their various uses in the automotive and industrial field, said Mr. Gill, not only would show possibilities for new markets, but would exert a tendency to stabilize production of this class of petroleum products.

Need for such stabilization was shown, he said, in the fact that the demand for lubricating oils generally increased not over 5 per cent in the period from 1926 to 1929. In the same period the volume of crude oil run to stills—the raw material for the manufacture of lubricating oils—increased 25 per cent.

As between the collection and publication of lubricating oil statistics by the government or by trade associations within the industry, Mr. Gill said he advocated the latter.

"The oil industry has been too preoccupied with gasoline and crude oil to give the proper attention to lubricating oils," he said. "It should be well enough organized to run more than a two-ring circus—and I use the word 'circus' advisedly."

**REVIEWS of other addresses and discussions at the meetings of the National Petroleum Association at Atlantic City are to be found in this issue starting on Page 34.**

In addition to the benefit in the operations of the oil industry, publication of statistics regularly as to consumption of industrial lubricants would be a valuable index to industrial activity for the business world generally, he said.

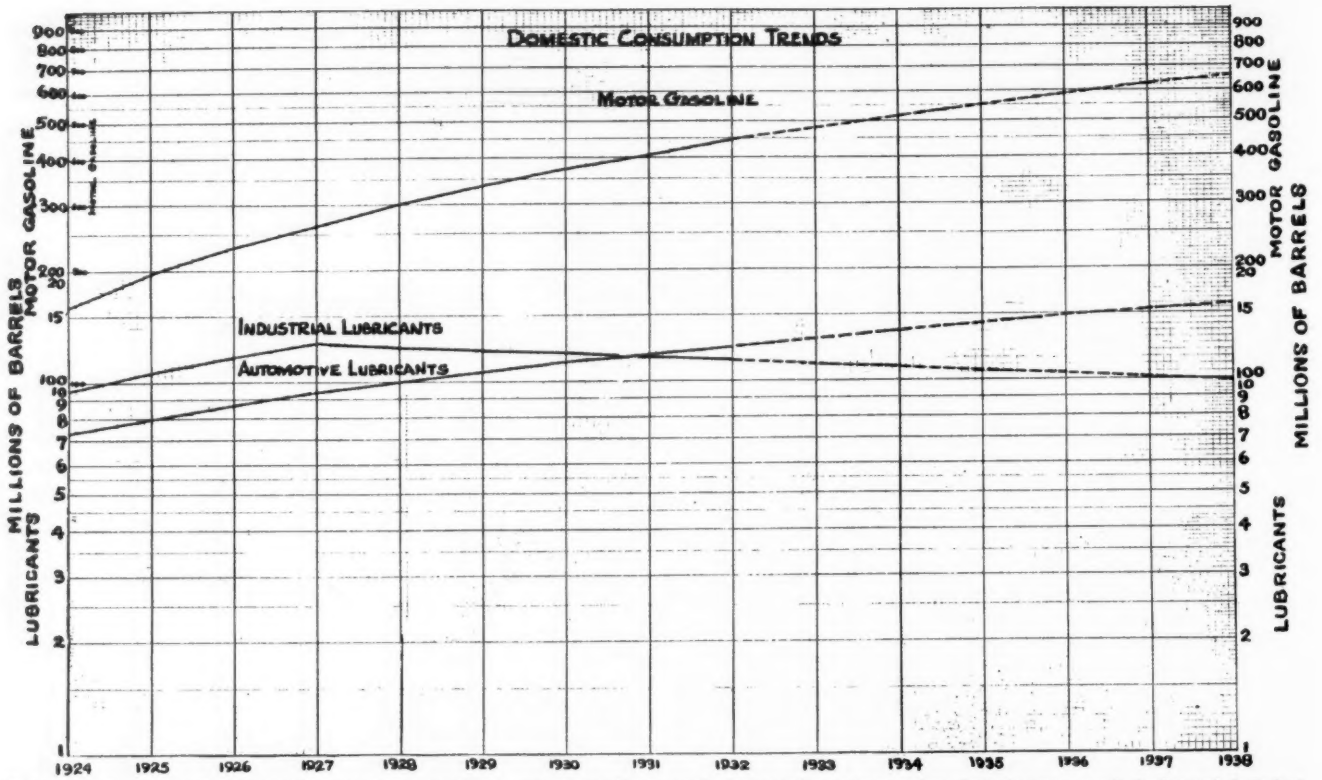
As an industry, we do not know the value of the automotive lubricants consumption, but we believe it exceeds $300,000,000 a year, he said.

The lubricating oil division of refineries in this country contributes 10 per cent of the bare factory value of all refinery products, he said, or about $250,000,000 annually.

Mr. Gill, at this point in his address, cited a miscellaneous list of manufactured commodities all the way from pearl buttons to rubber heels—having a total value less than a quarter million annually, for each of which complete statistics are available through trade associations.

Making available lubricating oil statistics would be of greater relative value to Appalachian refiners, he said, where the value of their lubricating oils is 45 to 50 per cent of the total value of all products of their plants.

"The intrinsic value of lubricating oils to the oil industry generally far exceeds their


DOMESTIC CONSUMPTION TRENDS
MOTOR GASOLINE
INDUSTRIAL LUBRICANTS
AUTOMOTIVE LUBRICANTS
MILLIONS OF BARRELS MOTOR GASOLINE
LUBRICANTS MILLIONS OF BARRELS
1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938

**Relative trend of domestic motor gasoline consumption and domestic automotive lubricants and industrial lubricants consumption, through 1936, the chart being a part of the presentation by John D. Gill, statistician, director of the Atlantic Refining Co., Philadelphia, before the National Petroleum Association at its meeting at Atlantic City last week. Whereas the normal expectancy is for an increase in motor fuel consumption of about 8 per cent, the expected increase in automotive lubricants is only 4 per cent. The chart also shows that an actual decline in consumption of industrial lubricants, due to various causes, started in 1926**

monetary value" he said. "They are worth far more than the industry now receives in price, in their service to the world in this machine age."

Taking 1 cent per kilowatt hour as the cost for generating power over the country generally, Mr. Gill said that not more than .04 cent of that is the cost of lubricants used to safeguard the machinery used against friction.

"Yet this machine age could not exist without our lubricating oils," he said, pointing out that such substitutes in animal oils do not exist in sufficient volume to supply the need, can only be manufactured at a greater cost, and are not as serviceable due to rancidity, and other inherent disadvantages.

"The .04 of a cent per kilowatt hour spent for lubricating oils by industry makes it possible to get the utmost from the fuel used and the machinery to operate at maximum efficiency."

On the point that the oil industry may be losing its markets for lubricants without being aware of it, Mr. Gill showed charts indicating the relative growth of motor fuel consumption and automotive lubricants consumption. With an expected increase in the former of 8 per cent a year, increase in the latter of not over 4 per cent could be anticipated.

Consumption of industrial lubricants increased until 1926 said Mr. Gill, but the trend of consumption here had been downward since that year and now the normal expectancy is for larger consumption of automotive than industrial lubricants. The downward movement of industrial lubricant consumption was at about 2 per cent a year he said, making the total increase in lubricating oil business that could be expected not much over 1.5 per cent a year.

Factors tending to limit the gain in consumption of industrial lubricants, said Mr. Gill, were consolidation of small power plants into central plants using turbines, where the lubricating oil requirements would not be much greater than that for one small power plant; air cooled transformers, doing away with need for transformer oil; increase in size of locomotives, without anywhere near the relative increase in lubricating oil needs; central lubrication and oil reclaiming systems for factories and so on.

In opening the first session President E. M. Lyons said that membership roll of the association had not suffered because of business conditions and that the work of the organization had not been curtailed. He emphasized the importance of the oil company executive today studying the current statistics of the industry and adapting his own company policies to the trend of the relationship between supply and demand as indicated by the statistics.

He suggested the gathering and publishing by some source such as the American Petroleum Institute of figures showing crude production and stocks in foreign countries, in view of present developments in the oil industry outside this country.

After a conference later between executivs of the National Petroleum Association and Dr. Frey, of the Bureau of Foreign and Domestic Commerce, Washington, it was announced that this government bureau would

(*Continued on Page* 22)

# THE EDITORS' VIEWPOINT

## Games are Fun in the Dark, Business is Not

THE proposal made last week before the Natonal Petroleum Association that the oil industry undertake the compilation of statistics on lubricating oil consumption is sound, it is practical and it will be of material benefit to oil companies.

The oil industry paid a heavy price for letting the gasoline business get out of its hands several years ago, in part at least because it was in the dark as to the current trend of supply and demand. There are plenty of indications today that somewhat the same conditions are arising in its marketing of lubricating oils, motor oils particularly.

It was largely the lack of current statistics on supply and demand that led to the surplus manufacture of gasoline some years ago, which resulted in its disposal in outside channels. These channels at once set up destructive competition with the oil companies and this condition continues to exist today. The refinery statistical service which was finally worked out under the direction of the American Petroleum Institute has been a real guide to the industry and has aided in keeping down surplus gasoline manufacture in the face of a large surplus crude output.

The last year or so has witnessed in many parts of the country the same type of destructive competition in the retailing of motor oil. Peddlers have set up on vacant corner lots selling oil at 50 or 60 cents a gallon. Department stores offer bargains and specials in motor oils, sometimes good brands, at way under the prices at the oil company service stations. House to house salesmen offer oil in five-gallon cans delivered to your garage, saying the product is the equivalent of any of the nationally advertised brands. And there are mail order campaigns on the same product.

Some of the oil offered through these outside sources is good oil and some is poor oil—but it all comes from the oil company refineries most of which have their established sales outlets and sales forces endeavoring to maintain stable marketing conditions.

With gasoline, where the price of the crude is a larger part of the price of the finished product and where also a larger proportion of that raw material goes into the manufactured gasoline, there is often an incentive to sell the surplus to avoid carrying crude stocks. This condition does not obtain with lubricating oil stocks in many cases. The lubricating oil manufacturer could well afford to carry a portion of his raw materials in stocks, or dispose of them in some other manner, rather than overproduce on finished lubricating oils and contribute to an unstable market brought about by surplus supplies.

With the oil industry as a whole facing a rate of gain in motor oil consumption of only four per cent as compared with an increase of about eight per cent in motor fuel consumption, and also facing a decline in industrial lubricating oil consumption in coming years, as was pointed out by an eminent statistician to the National Petroleum Association at its recent meeting at Atlantic City, there is indeed great urgency for the oil companies to undertake the compilation of statistics which will guide them accurately as to current market trends.

AS IT is now, the oil industry is without chart or compass as far as lubricating oils are concerned. The Bureau of Mines reports monthly production, shipments and estimated stocks of all lubricating oils. What stocks consist of is not shown. There is no effort to set off motor oil grades from grades of industrial lubricants.

It would seem that arrangements could be made with the individual refiners and blenders producing finished lubricating oils, whereby they could report their production and sales of lubes divided into motor oils and industrial oils and greases. The totals, placed promptly in the hands of the industry, would be made of great value to the individual company in adjusting its manufacturing program to the trend of demand.

The lubricating oil markets are entirely to the petroleum industry. As of the present, possible substitutes are not as serviceable, can only be produced at greater cost and even then could not be made in sufficient volume to serve the need. Cost of processing, rather than cost of raw material, is the principal factor in the price of the finished product, and demands of the industrial and automotive world both are more exacting in service demanded of lubricants today. Still, the cost of proper lubrication to industry is a very small item indeed in its total operating cost, and is many times made up through the increased life to equipment which it brings.

Unstable markets, under such conditions, can come only from lack of guidance and foresight on the part of the industry itself.

## Lubricating Oil Markets

(*Continued from page* 20)

undertake the regular publishing each month of such figures. Figures on crude production in other countries and other oil statistics have heretofore been issued with other information on foreign countries but no attempt has been made to compile a report including only oil statistics.

"Jimmy" Doolittle, of the Shell Petroleum Corp., the aviator who established the record for the fastest flight across the country in connection with the recent National Air Races, was the National Petroleum Association's speaker on aviation.

He impressed on his audience the need for the oil industry to develop suitable aviation fuel and lubricants in keeping with the needs of the latest design in airplane engines. He said the use of ordinary grades of motor fuel would burn out the pistons of a modern aviation engine in 15 minutes.

The competition that Russia will give the oil industry in this country was discussed by Col. G. A. Burrell, of the Burrell-Mase Engineering Co., Pittsburgh, author of the series of articles on "Experiences of an American Engineer in Russia," now appearing in NATIONAL PETROLEUM NEWS.

While stating that Russia would be a considerable factor in the world petroleum market, shipping probably 175,000,000 barrels in 1931 from its oil fields, much of which will be exported, Col. Burrell questioned whether the Russians have such a great advantage in lower production and refining costs as has been generally believed.

While the Russian oil industry does have the advantage of paying no royalties and no costs to the landowner, since the communist government is both the landowner and the owner of industrial properties, Col. Burrell said it had three principal disadvantages to efficient operation as we understand it in this country.

First of these he said, was that the oil industry there was operating with an untrained personnel. Peasants had been brought in off the farms to operate producing and refining properties, he said, without any previous experience or training in factories or any other industrial enterprises and it would be some time before a class of industrial workers could be developed as are now found in other countries.

A second reason tending to high operating costs in the oil industry in Russia, stated Col. Burrell, was the fact that plants and properties were now operating with higher priced materials and equipment than plants in this country. Equipment that was in use when the communist government took over oil industry properties was even then obsolete and had to be replaced, he said. Equipment and material for replacements came principally from this country at a cost naturally considerably larger than for installation in this country.

The third reason tending to high operating costs in Russia now, said Col. Burrell, was that the operation was by the government, in the form of orders and edicts from groups, and not lending itself to the efficiency of highly centralized management as in this country.

He said it was necessary for the government to carry on its industrial operations at a profit, since its great source of revenue is from its export trade, and there must be profits from this trade which can be expended in improving living conditions for the Russian people which the government has promised.

# Why Not Sears Roebuck in an Oil Merger, Asks Doherty

ATLANTIC CITY, Sept. 17

"WHY not merge the Standard of New Jersey with Sears Roebuck, the Goodyear Tire, the Western Union, the United Hotels, the A. & P. and all and every description of chain stores?"

This was suggested ironically by Henry L. Doherty, head of large oil and gas and public utility interests, in an address before the National Petroleum Association here the 16th.

"This seems to be the natural trend of what we are doing, although we do not seem to realize it," he said.

"First we added to our business of selling gasoline the very commendable activity of running comfort stations. Next came hot dogs and now miscellaneous merchandise."

He referred to the over-expansion of the number of gasoline stations and the present attempts of many oil companies to enlarge the commodities and services offered at those stations by going outside of oil products.

Now, he said, after having demonstrated utter inability to manage their own affairs, and after crippling the coal business and the coal carrying railroads, the oil companies propose to go into any and every line of business to enable them to support non-profitable service stations and thus subject every other line of business that has any possibility of profit to unfair competition and perhaps ruin.

In his address Mr. Doherty said the leaders in the oil industry had been saved from disgrace by the general business slump and that the public will believe the oil industry has been carried along by the flood of business disorganization.

"In fact, the oil industry could have easily ridden this general business storm with a remarkably high degree of prosperity," he stated. "What is more, if prosperity does by accident overtake our general business condition, it won't help the oil business much if at all."

Under our present system of developing oil pools, said Mr. Doherty, regardless of how much or how little we have in the way of resources, it is bound to be recovered and the bulk of it bound to be recklessly and unnecessarily wasted. More petroleum will go into competition with coal, he stated, and the industry will be forced to find an outlet to the final consumer for increasing quantities, leading to expansion of service stations.

# Allowed Daily Output for East Texas Wells Cut from 225 to 185 Barrels

By Paul Wagner

N. P. N. STAFF WRITER

HOUSTON, Sept. 21 MODIFICATION of the state railroad commission's East Texas oil conservation order reduced per well production from 225 to 185 barrels daily, effective Sept. 21, in Gregg, Upshur, Rusk and Smith counties.

The new order, issued Sept. 18, put into effect the commission's previously announced plan of reducing the per well allowable output whenever it appeared the field would produce more than 400,000 barrels daily.

Production for the week ended Sept. 16 averaged 419,425 barrels daily; the highest on one day attained since reopening of the field Sept. 5 had been 425,343 barrels.

Immediately prior to issuance of the new order representatives of governors and oil regulatory agencies in Oklahoma, Kansas and Texas met in Governor Sterling's office at Austin and pledged efforts to restrict oil production of the three states to certain definite figures.

Suggested maximum production for Texas was 902,000 barrels daily, Oklahoma 546,000 barrels and Kansas 110,000 barrels. Approximately 1,000,000 barrels daily production is now coming from Texas fields.

How allowable production will be determined in other fields than East Texas will be considered at hearings of the railroad commission set for Sept. 30 at Austin and Oct. 3 at Amarillo.

All Texas fields except the Panhandle and East Texas will be considered at the Austin hearing; the Panhandle field at Amarillo.

The commission has been holding the East Texas order open and amending it without rehearing since its application of new regulations under the recently enacted physical waste statute, which was first made applicable Sept. 5.

Its first modification was effective Sept. 15, when the commission ruled that only one well might be drilled on 20-acre units in East Texas, in the future, except to protect vested rights on fractional tracts. Its next modification was the reduction in per well allowable for the field.

"Conditions are such," said the commission order reducing East Texas wells, "that in order to safeguard against waste in the field it is necessary, under existing conditions, to further limit the production of the field.

"While the commission is still of the opinion that the evidence was not sufficient to form the basis of an order definitely utilizing to the fullest extent the gas energy and hydrostatic pressures in the pool or reservoir, it is of the opinion, and so finds, that withdrawals of oil from the pool should be held within safe bounds by temporary methods until, by proper investigation, the accurate and safe method of pressure control, or correct gas/oil ratios may be established for the operation of the pool, so as to hold the waste of oil and gas to a minimum."

IN FURTHERANCE of this finding, the commission then ruled that for the present East Texas daily production should not exceed 185 barrels per well daily and the gas/oil ratio should not exceed 500 cubic feet to the barrel. When the field was reopened Sept. 5, the gas/oil ratio was fixed at a maximum of 700 cubic feet to the barrel.

Although members are known to favor an East Texas field allowable not exceeding 400,000 barrels daily, the attorney general's department has ruled the commission must proceed only on a per well allowable basis under the new law; justifying their order on the quantity of oil a well may produce without creating physical waste.

There are now nearly 2000 completed producing wells in the field (1962 as of Sept. 16), some 140 of which are off production because they will not flow and operators have not installed pumping equipment.

TANK car shipments from East Texas are at a minimum since reopening of the field. In the week of Sept. 16, when production averaged 419,425 barrels daily, the distribution of crude included railroad movement of only 13,885 barrels daily. Pipeline shipments were 297,050 barrels daily; oil moved to local refineries was 26,041 barrels daily; and storage accumulations 82,449 barrels.

Brigadier General Wolters, in charge of martial law occupation of the East Texas producing zone, set in motion plans to permit closer check on production and at the same time afford greater protection to royalty owners. At his request, the railroad commission adopted a rule requiring lockstops and seals on tanks.

The rule requires all pipelines, purchasers and carriers to equip their lines from field storage tanks with lockstops, and in addition requires them to attach a seal to each stopcock after each run of oil from the tank.

"This will enable a check to be made on operators and also protect the royalty owners," said General Wolters. "The necessity for having such a rule is urgent and it was requested

that it be adopted immediately."

Present at the conference in the governor's office at Austin, Sept. 18, were Cicero I. Murray, representing the governor of Oklahoma; Cullen F. Thomas, representing Governor Sterling of Texas; Thurman Hill, representing the governor of Kansas; C. V. Terrell, chairman of the Railroad Commission of Texas and Paul A. Walker, chairman of the Corporation Commission of Oklahoma. Thurman Hill is also public service commissioner in Kansas.

The following statement issued from the governor's office was signed by the entire group:

"The governors of the states of Texas, Oklahoma and Kansas, and the regulatory commissions of those states, having jurisdiction over the conservation of crude petroleum and natural gas, in joint session at the state capitol, Austin, Sept. 18, after having considered the world oil stabilization program, submitted and approved at the Oklahoma City oil stabilization conference, Sept. 11, hereby record our hearty approval of the general program and purpose of this conference insofar as the laws of our respective states permit.

"In like manner we indorse the effort to limit the maximum production to the amounts recommended in the three states, to-wit: Texas, 902,000 barrels; Oklahoma, 546,000 barrels; and Kansas, 110,000 barrels of crude petroleum daily for the remainder of the year and pledge ourselves to continue thereafter to co-operate to this end to the extent of our ability.

"We take this action in the belief that such program will tend to prevent physical waste and preserve our mineral resources to the people of the states we represent for our own generation and for posterity."

# Oil Sand Pressures, East Texas Geology On A.I.M.E. Program

HOUSTON, Sept. 21

THE complete program for the fall meeting of the petroleum division, American Institute of Mining and Metallurgical Engineers, to be held at the Lamar Hotel, Houston, Oct. 2, 3 and 4, has been announced.

The papers to be presented include discussions on East Texas geology, pressure studies of oil sands, relationship of gas energy and oil production, advantages of using tubing, depth pressures, reservoir pressures, bottom hole chokes, flow string design, economic discussion, proration, and others.

A feature of the meeting will be a field trip to the Sugarland oil field and the sulfur properties of Texas Gulf Sulphur Co., at Boling, Tex. W. W. Scott, chief petroleum engineer, Humble Oil & Refining Co., will supervise the trip and A. G. Wolf, chief geologist, Texas Gulf Sulphur Co., will explain the features of this largest sulfur-producing property in the world.

Program of the petroleum division follows:

"Geology, Development and Engineering—East Texas Oil Field," by F. H. Lahee, Sun Oil Co., Dallas.

"An Experimental Study of the Pressure Gradient Within the Oil Sand About a High Pressure Producing Well," by Professor L. C. Uren, University of California, Berkeley, Cal.

"The Relation Between Gas Energy and Oil Production," by Professor B. B. Boatright, Colorado School of Mines, Golden, Col.

"Advantages of Flowing Wells Through Tubing," by H. M. Marsh, General Petroleum Corp., Los Angeles.

"Determination and Application of Depth Pressures in Yates Field, Texas," by Dale Nix, The California Co. Midland, Tex. Discussion by P. P. Gregory.

"Reservoir Pressures in the Hobbs Field, New Mexico," by R. S. Christie, Amerada Petroleum Corp., Hobbs, N. M.

"Recent Development and Use of Bottom Hole Chokes," by J. S. Ross, Southern States Co., Shreveport.

"Design of Flow Strings," by M. Albertson, Shell Petroleum Corp., Dallas.

"Flowing Wells With Small Tubing," by R. R. Hawkins, The Texas Co., Tulsa.

"Stabilizing Influences for the Petroleum Industry," by Earl Oliver, Ponca City, Okla.

"Conflicting Recommendations from the Petroleum Industry," by C. V. Terrell, chairman, Railroad Commission of Texas, Austin, Tex.

"Authority of the State to Regulate Production," by Fred Upchurch, assistant attorney general of Texas.

"Salt Domes for Engineers," by Wallace E. Pratt, Humble Oil & Refining Co., Houston.

Symposium on local practices and problems.

## Cooke Ranch Field In Texas Reopened

HOUSTON, Sept. 18.—The 300 plus oil wells in the Cooke ranch pool of Shackelford county have been reopened to four barrels per well daily by Roeser & Pendleton, Inc., and the Continental Oil Co., their owners. The field, six miles northwest of Albany, had been shut down since June 30. In the shut-down period it was necessary to operate a few edge wells, but the entire field had been held within 200 barrels daily.

The Cooke ranch gasoline plant of Roeser & Pendleton, Inc., has also resumed operation. The property, which produces from a shallow sand pay at 1000 feet, makes use of the gasoline plant in a repressuring project, which constitutes one of the largest single pool developments of its kind in the Mid-Continent.

## Hearing Delayed On Texas Pipelines

HOUSTON, Sept. 18.—Hearing set for Wednesday, Sept. 23, on rates and regulation of common carrier pipelines, has been postponed until Monday, Sept. 28 by the Railroad Commission of Texas, at Austin.

Under the new pipeline law, passed at the July-August oil session of the legislature, previously existing common carrier statutes were amended calling for an investigation of the rate structure and the fixing of such changed rates as might be found appropriate.

# Royalty Owners Charge Violation Of Proration in Okla. City

By Lawrence E. Smith

N. P. N. STAFF WRITER

TULSA, Sept. 19

OKLAHOMA passed through another week of martial law with no change from the situation that has prevailed since early in August, except that the rumor factory worked day and night shifts. Some interesting theories were dredged up and put on display.

One was that the oil fields of Oklahoma will soon be opened to production on proration basis; that somebody will post a price for oil having one dollar as the top, that figure having been demanded by Gov. Murray, and that the top price will apply only on oil of a gravity so high that it will represent no real purchases.

It is no secret that the shutdown, especially in the Oklahoma City field, has dragged on much longer than suits a number of the operators who petitioned the governor to take the action he did. The major purchasers did not capitulate quickly, as they were expected to, but went along taking oil out of storage to fill their requirements.

This latter policy hasn't worked out well from the standpoint of the state. Oil in storage on the first of January is taxed. The amount to be taxed next year will be much less than it was a year ago and several counties in which storage tank farms are located will feel the effect of this situation, aggravated to some extent by martial law shut-down.

One learns, also, that some of the bankers are getting restless. It is no secret that not all oil companies are able to meet interest charges and the due date of notes with properties shut down and income stopped. The governor is hearing quite a lot along this line nowadays.

So far as the price of oil is concerned, the only thing that happened was a new posting by Phillips Petroleum Co. On Aug. 24 the company raised the price in Oklahoma and Kansas to a top of one dollar, for 40 gravity and over, with two-cent differential for each degree down, lowest price being 78 cents for the grade 29-29.9°. Effective Sept. 17 it posted a reduction.

The grade Below 29 is now 46 cents; 29-29.9° is 48 cents, or 30 cents below what it was, and the top grade is 70 cents, conforming to schedules of other buyers. Its schedule in Gray county, Texas Panhandle, was 46 to 58 cents and is unchanged except for abolition of two low grades and starting the schedule with the grade Below 35°. In Carson, Moore and Hutchinson counties, also in the Panhandle, the old schedule started at 34-34.9, for which the Phillips paid 48 cents and a two-cent differential up to 40 and above, for which it paid 60 cents. The new schedule begins with Below 35, posted at 41 cents, and a two-cent differential per degree ending at 40 and Above, 53 cents.

Wilcox Oil & Gas Co. posted the same price in Gray county as did the Phillips, effective the same date.

THE beginnings of a fine political row were evident early in the week when the Royalty Owners' Protective Association, of Oklahoma City, broke into the newspapers with allegations that there had been violation of the proration rules in the Oklahoma City field and of the martial law shut-down of the wells. Robert Burns, lieutenant governor, has been hired as counsel for the association and he asserted that he was investigating reports that under cover of darkness certain wells are being operated and that there are concealed pipelines which are carrying the oil away. He promised court action if he finds the reports to be true.

This association is headed by M. J. Theimer, a royalty owner in the field, and has as manager O. N. Jayne. It was recently organized. Its dues, or fees, are $5 for each 10 acres of royalty or fraction thereof that a member owns and ranges up to $80 for 160 acres royalty, plus two per cent of each month's royalty check.

BURNS went further in his assertions and said that there had been cheating on proration for considerable time, even before martial law. He said that royalty owners had not received the payments and the state the gross production tax on "hundrds of thousands" of barrels. His attitude drew the retort from the governor that the lieutenant governor was trying to tear down enforcement instead of co-operating. Cicero I. Murray, in charge of the martial law enforced shut-down, said that if Burns would supply him with evidence he would increase the number of men he has patroling the field.

From all the accounts, the Oklahoma City field must be filled with secret agents every night. Besides the umpire's assistants, who go about their lawful occasions, the governor recently said he had a crew at work, Cicero I. Murray has some and now this royalty association has its spies on the job. More co-operation is clearly a necessity. Oil company scouts handle their work by dividing the territory and holding "check meetings" and such a

plan might be successful in the secret espionage duties at Oklahoma City.

Mid-Continent producers were gratified to hear that the Railroad Commission of Texas had ordered the allowable per well reduced from 225 barrels daily to 185.

The political situation in Kansas was unchanged over the week. The only prorated area in the state, the Ritz-Canton field of McPherson county, is producing under 10 per cent allowable for all wells. The state Public Service Commission will hold another hearing on this field at Wichita, Sept. 29, and will at that time also consider the petition of several landowners in the Raymond pool of Rice county, now shut in under commission order, for allowable of 200 barrels per well daily.

# World Oil Proration Conference Suggested to Washington

By Telegraph

WASHINGTON, Sept. 22

AID of the state department will be asked in arranging an international conference of oil companies for the purpose of arriving at proration of crude production throughout the oil fields of the world. This will be done as soon as limitation of production in the United States has reached the point the suggestion for such a conference may reasonably come from this country.

This was announced Sept. 21 by the committee of representatives of state conservation agencies in the southwest, which came to Washington to confer with Secretary of Commerce Lamont. The committee was appointed at a meeting of public utility commissioners of Kansas and Oklahoma in Oklahoma City Sept. 11.

The committee is expected to call upon Secretary of State Stimson to give him informally its plan for regulated production throughout the world. The help of the state department is also to be asked in securing limitation of imports of petroleum products.

At the conference Secretary Lamont was told of the suggested plan for allocating allowable production among the principal oil states and producing areas of this country on the basis of the 1928 figures, giving a total allowable for this country of 2,379,000 barrels daily. This figure was suggested as applicable for the rest of this year and all of 1932, and provides for a withdrawal from stocks of 71,000,000 barrels in 1932. For purposes of comparison, daily average total crude production in the country for the week ended Sept. 19 was reported by the American Petroleum Institute as 2,201,600 barrels, with Oklahoma, still under military surveillance in its flush fields producing only 258,450 barrels.

The committee emphasized the importance of having the principal importers of petroleum from Latin America agree to hold down their imports to the same relative extent operators here are restricting domestic production. Secretary Lamont promised to submit the legal questions involved in an agreement among importers to the attorney general's office. The committee said that the importers would not consent to talk about an agreement for fear of running afoul of the anti-trust statutes aimed at concerted restraint of imports.

The conference with Secretary Lamont was behind closed doors. Aside from the representatives from the southwest, Fred M. Feiker and John W. Frey, of the Bureau of Foreign and Domestic Commerce, and Scott Turner, director of the Bureau of Mines, participated. Members present of the committee appointed at Oklahoma City were: C. V. Terrell, of the Railroad Commission of Texas; Wirt Franklin, president of the Independent Petroleum Association of America; W. N. Davis, president of the Mid-Continent Oil & Gas Association; and Thurman Hill, member of the Kansas Public Service Commission. Capt. J. F. Lucey, of the Lucey Petroleum Corp., Dallas, represented Governor Sterling, of Texas, in the conference. Cicero I. Murray, chairman of the Oil States Advisory Committee, a member of the committee, did not attend.

## Committee Calls on Hoover

**By Telegraph**

**WASHINGTON, Sept. 22.—Representatives of southwestern state conservation agencies called on President Hoover at noon today. Secretaries Wilbur and Lamont talked with the President about the situation before arrival of the oil men.**

**Secretary Wilbur announced that he was in hearty sympathy with the desires of the committee but suggested that this country should set its own house in order before asking the world to prorate.**

## Early Opening of Okla. Fields is Indicated

By Telegraph

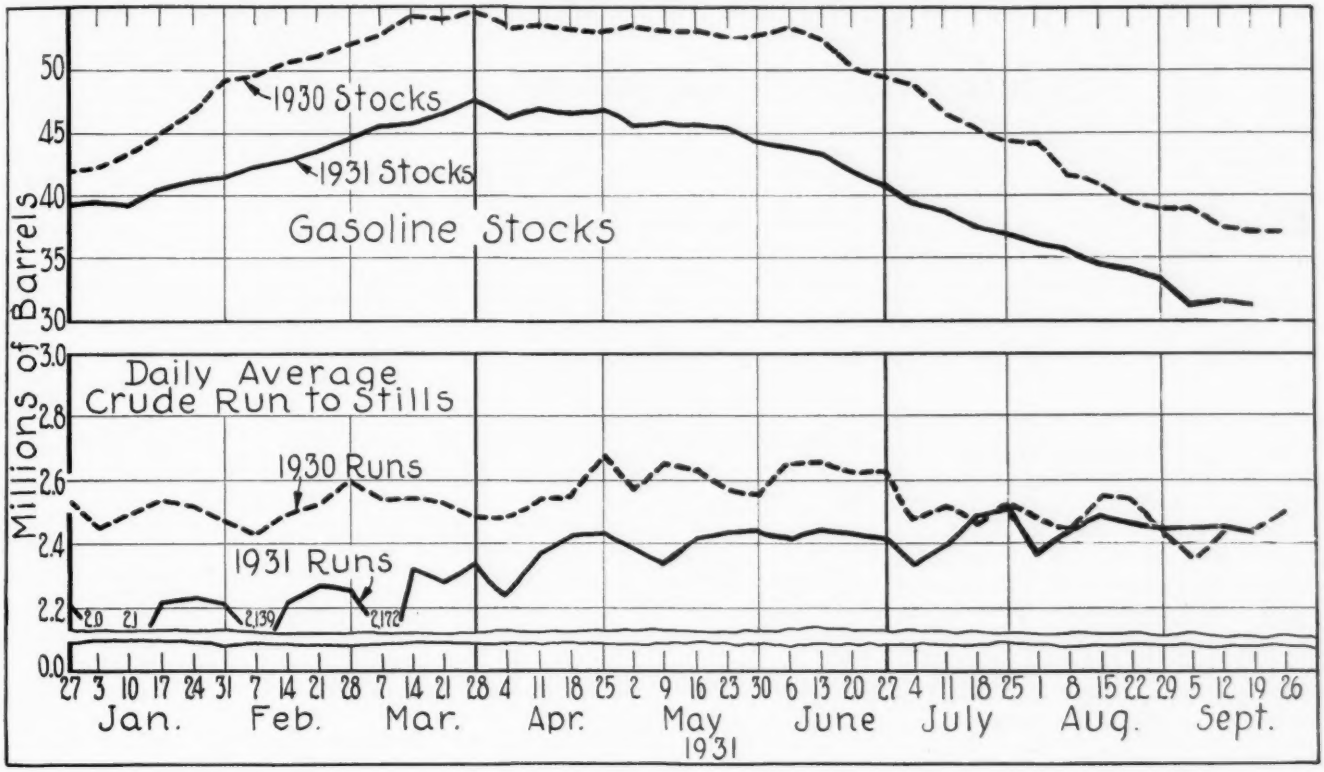
TULSA, Sept. 22.—Events in Oklahoma today point to a probable early opening of producing fields in the state which have been shut down under martial law since Aug. 4.

No official statement has been made but Governor Murray, who now is on a speaking tour, told newspaper men at Kansas City Monday night that Oklahoma fields would be opened Wednesday morning. No order had come through up to noon Tuesday.

Cicero I. Murray, martial law administrator for the governor, called a conference Tuesday morning of Umpires Ray Collins and Otto Bradford and Chief Conservation Agent Armstrong in Oklahoma City.

This activity came simultaneously with an Associated Press quotation of R. S. Ellison, president of the Stanolind Crude Oil Purchasing Co., to the effect that a crude price is unwarranted at this time in view of the fact that the industry is entering its season of decreased demand.

## U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.




# Refinery Gasoline Stocks Reduced 695,000 Barrels

By Telegraph

NEW YORK, Sept. 22

STOCKS of gasoline at refineries reporting to the American Petroleum Institute were reduced 695,000 barrels in the week ended Sept. 19. Total stocks at refineries on that date were 31,123,000 barrels.

Stocks of gasoline at bulk terminals east of California and in transit to these terminals were increased 569,000 barrels during the week. Bulk terminal stocks were largely unchanged at 10,005,000 barrels but "in transit" stocks increased 627,000 barrels to 2,176,000 barrels.

Considering these bulk stocks along with refinery gasoline storage total gasoline stocks outside of the distributing system were reduced only 126,000 barrels during the past week. In the past two weeks the reduction has been 219,000 barrels.

Principal reductions in refinery gasoline stocks were reported by East and West Coast districts in the week ended Sept. 19. East Coast refiners drew 318,000 barrels from storage and California 385,000 barrels. Texas and Oklahoma reported substantial increases.

Refiners reduced their runs of crude to stills 28,200 barrels daily average during the week. Large reductions in the southwest and middle west were partially offset by a 40,000-barrel increase on the East Coast. Cracked gasoline production was reduced 25,000 barrels daily average under the new record set the previous week.

## Current Refinery Operations

| Districts | Per Cent Capacity Reporting | Daily Average Crude to Stills (Barrels) Week Ended | | Per Cent of Reporting Capacity Operated Week Ended | | Stocks (Thousands of Barrels) Gasoline | | Gas & Fuel Oil | | Cracked Gasoline % of Total Capacity Reporting | Production Daily Av. Production (Barrels) Week Ended | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Sept. 19 | Sept. 12 | Sept. 19 | Sept. 12 | Sept. 19 | Sept. 12 | Sept. 19 | Sept. 12 | Sept. 19 | Sept. 19 | Sept. 12 |
| East Coast | 100.0 | 497,300 | 457,000 | 78.5 | 72.1 | 3,935 | 4,253 | 10,799 | 10,625 | 90.4 | 96,400 | 95,000 |
| Appalachian | 91.8 | 112,300 | 111,900 | 81.7 | 81.4 | 1,209 | 1,244 | 1,585 | 1,525 | 96.1 | 25,000 | 25,700 |
| Ind., Ill., Ky. | 98.9 | 336,500 | 360,100 | 78.0 | 83.5 | 3,828 | 3,956 | 4,924 | 4,716 | 95.5 | 93,900 | 98,700 |
| Okla., Kans., Mo. | 89.6 | 282,000 | 304,100 | 64.8 | 69.9 | 2,715 | 2,672 | 5,236 | 5,191 | 92.3 | 62,900 | 60,900 |
| Texas | 91.3 | 512,600 | 534,600 | 67.0 | 69.8 | 5,666 | 5,457 | 11,482 | 12,043 | 96.8 | 117,700 | 129,900 |
| La., Ark. | 98.9 | 166,300 | 168,300 | 72.1 | 73.0 | 749 | 803 | 3,304 | 3,226 | 100.0 | 32,300 | 38,400 |
| Rocky Mountain | 89.3 | 49,700 | 49,200 | 34.9 | 34.6 | 1,188 | 1,215 | 808 | 804 | 98.5 | 12,600 | 13,700 |
| California | 96.5 | 475,000 | 474,700 | 54.0 | 53.9 | 11,833 | 12,218 | 96,995 | 97,244 | 100.0 | 43,400 | 46,700 |
| Total | 95.0 | 2,431,700 | 2,459,900 | 66.5 | 67.3 | 31,123 | 31,818 | 135,133 | 135,374 | 95.6 | 484,200 | 509,000 |
| Texas (Gulf Coast) | 99.8 | 380,000 | 390,600 | 71.5 | 73.5 | 4,493 | 4,295 | 8,137 | 8,522 | 98.6 | 93,100 | 103,600 |
| La. (Gulf Coast) | 100.0 | 112,000 | 111,900 | 75.9 | 75.9 | 530 | 594 | 2,299 | 2,211 | 100.0 | 23,600 | 30,400 |

# Oklahoma City Future Confused By "Underproduced" Question

TULSA, Sept. 19

PROMINENT among the problems to be settled in Oklahoma after martial law is lifted, or when production is resumed under martial law, is that of the "underproduced" wells in the Oklahoma City field.

Because the Seminole district has had adequate markets for the oil its pools have been producing under proration, the chief question among operators there has been one of keeping the leases down to the allowable production. Oklahoma City, with potential so greatly in excess of market facilities, has long struggled with the matter of ratable taking. Under the corporation commission's orders, wells that failed, because of lack of market outlet, to produce their allotments, were given a credit and those which exceeded their allowables were penalized to whatever extent they were overproduced.

If it were merely a matter of resuming production, taking up with the allowables where the field left off when martial law was imposed, it would be simple. But, the voluntary shutdown which occurred in July, lasting more than two weeks before Gov. Murray ordered all wells shut in, is a complicating factor. The majority of operators joined that voluntary shutdown in protest against the low price. Some went ahead producing and used up their allotments for July.

There is a division of opinion as to how this should be handled when production is resumed. Those who shut in voluntarily believe the amount of their allotments which they failed to produce should be set up as a credit. They assert that some other operators went ahead producing and have taken out varying amounts of oil. Those who failed to produce should be allowed to catch up, else it is not true ratable taking.

The other side of the argument, advanced by certain producers, is that failure to produce by those in the voluntary shut-down, was wholly a matter of discretion with them. The opportunity to produce and sell oil was present; some elected not to use that opportunity. It is quite a different matter, it is argued, than shutting down because there was no market.

Another vexing question that will arise is that of wells completed during the martial law period. Under the rules that have applied to the Oklahoma City field heretofore, a new well was penalized 65 days. It was shut in for that long, after being given its initial test. Reason for this rule was to compensate early wells in the field for the shut-downs that occurred from time to time before the proration system of later days was put into effect.

Now, the question is, should the wells completed after martial law was ordered take merely the 65 days penalty from the time they were brought in, or should their penalties begin to run from the time when the field goes back on production.

According to the monthly report of Umpire Otto B. Bradford, the status of companies on Sept. 1 as to over and underproduction was as follows:

| Company | Over | Under |
|---|---|---|
| Acme Oil & Gas | | 16,718 |
| Addition Pet. Co. | | 44,819 |
| Anderson-Prichard | | 288,513 |
| American Oil | 11,296 | |
| Blackstock Oil | 1,732 | |
| Blackwell O&G | 21,431 | |
| British American Oil | | 97,076 |
| California Oper. Co. | 3,679 | |
| Capitol P&R | | 3,001 |
| Century Pet. | | 80,286 |
| Champlin Refining | 498,932 | |
| Chatham Oil | | 35,140 |
| Coline Oil | | 26,273 |
| Continental Oil | 11,372 | |
| Courter Oil | | 1,931 |
| Cromwell Franklin Oil | | 192,681 |
| Danciger Royalty | 9,285 | |
| Denver P&R | | 114,526 |
| Dengail O&G | | 106,570 |
| Donleon Oil | | 36,905 |
| Eason Oil | 2,152 | |
| Empire O&R | | 9,776 |
| France Dominion Oil | | 17,910 |
| Wirt Franklin Pet. | | 210,981 |
| Great Southern Pet. | 234 | |
| Hall & Briscoe | 161,301 | |
| Hud Oil Co. | | 1,019 |
| Indian Territory Ill. Oil | | 599,784 |
| Johnson-Dabney-Patton | | 4,953 |
| Jones Bros. Drilling | | 10,313 |
| Kedberg Oil | 24,608 | |
| Mabee et al | | 108,465 |
| Marco Oil | 26,289 | |
| R. A. McArthur | 17,123 | |
| Mid-Kansas O&G | | 211 |
| Mid-Texas Pet. | | 7,650 |
| Minnehoma Oil | | 20,399 |
| Morgan Pet. | | 3,954 |
| Oils, Inc. | | 67,702 |
| Payne & Johnson | | 3,974 |
| Phillips Pet. | | 611,364 |
| Plains Pet. | | 2,597 |
| Prairie O&G | | 5,231 |
| Rajah, Inc. | | 5,137 |
| Reynolds & Unruh | | 15,318 |
| Russell Pet. Corp. | | 34,480 |
| Scott & Co. | 18,900 | |
| J. C. Shaffer | | 44,329 |
| Shell Pet. Corp. | | 2,605 |
| Sinclair O&G | 119,975 | |
| Skelly Oil | | 27,902 |
| Slick-Urschel, Inc. | | 888,925 |
| Springrose Drilling | 6,188 | |
| Sunray Oil | | 35,137 |
| Watchern Oil | | 25,401 |
| Wellman O&R | | 6,299 |
| Westgate Oil | | 6,755 |
| Wilcox O&G | 61,006 | |
| Wrightsmith Oil | | 6,082 |
| | 1,492,625 | 4,335,205 |

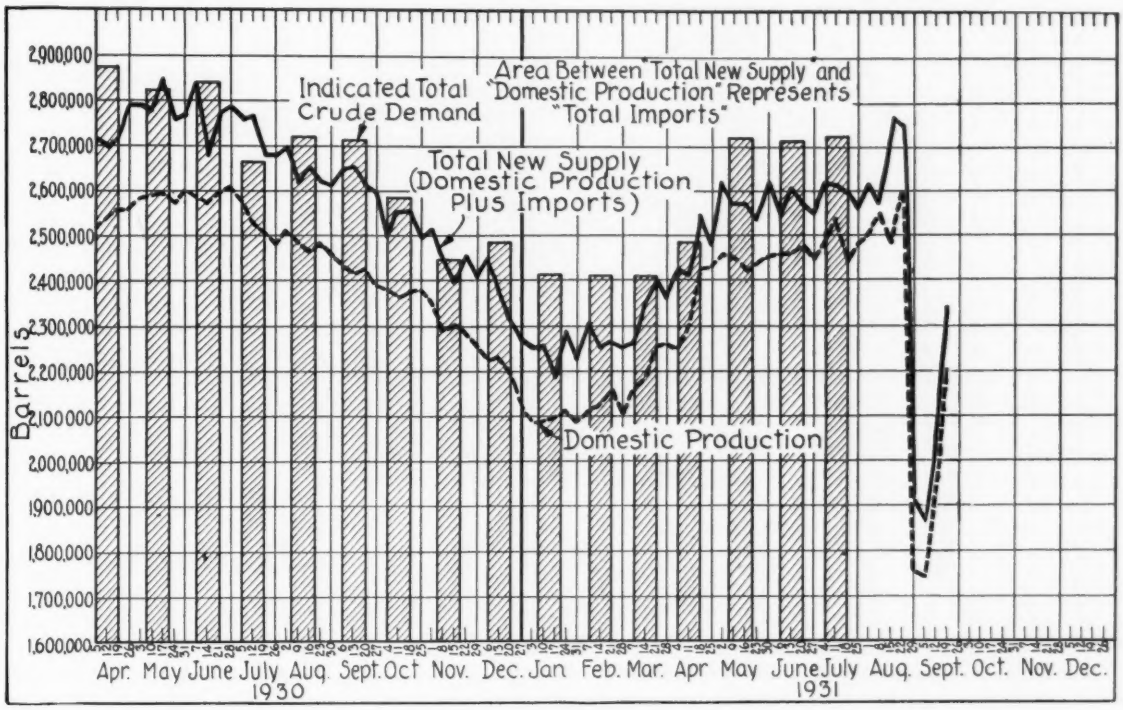
Pipeline runs from the field in August reduced stocks to a figure not much in excess of two days' production at the rate established just prior to the voluntary shut-down. Total runs from the field in August were 824,759 barrels—martial law was established in Aug. 4—and that withdrawal left stocks at 617,650 barrels for the entire field.

## New Stellarene Plant At Coutts, Alberta

TORONTO, Sept. 17.—The plant of the Northwest Stellarene Co. at Coutts, Alberta, Can., is completed and in operation, using crude from the Red Coulee field of Alberta. This plant is the first vapor-phase cracking plant to be constructed in Alberta province.

Products from this plant will be marketed from district sales offices at Lethbridge, Calgary, and other points throughout central and western Canada.

# Review of Late Production News




**This chart shows crude oil supply according to the American Petroleum Institute reports (solid line in relation to indicated crude oil demand as taken from the Bureau of Mines monthly reports (shaded columns).**

## California

RENEWED activity in the Portero pool, a member of the chain of Los Angeles Basin fields making up the Beverley Hills-Newport uplift appeared a possibility following the completion of a project deepened to a lower producing horizon. The well, Coffin 1, had an initial output of 1000 barrels of 37 gravity oil and about three million cubic feet of gas at 6508 feet after coring 100 feet of sand. Late in the week the flow was reported reduced to about 600 barrels per day, clean. Previous completions in the area have all had sand troubles that eventually put them out of the running.

Petroleum Securities Co.'s Burbank 1, Middle Dome, Kettleman Hills, was reported drilling in shale below 8000 feet. This body of shale was picked up at 7844 feet and experts believe it is probably the equivalent of the variegated zone found about 350 feet below the top of the Temblor zone on the North Dome. The Temblor was first encountered at about 7563 in the Burbank.

## Texas, New Mexico, Louisiana

EXTENSION of the Joiner area of the East Texas field southward into Cherokee county was indicated when Mid-Kansas Oil & Gas Co.'s No. 1 J. H. Sharp test, M. Delos Santos survey, cored oil sand at total depth of 3645 feet, subsea depth 3307 feet. The test is near the intersection of Smith, Rusk and Cherokee counties on a 482-acre tract.

Maximum production of the East Texas field since its reopening Sept. 5 was attained at 425,343 barrels daily, prorated 225 barrels per well.

Operations were of local importance in New Mexico and Louisiana throughout the week.

**Daily Average Production, Important Districts, American Petroleum Institute Figures**

**(By Telegraph)**

| | Week Ended Sept. 19 Barrels | Sept. 12 Barrels |
|---|---|---|
| Okla. City | 4,300 | 7,550 |
| Oklahoma | 258,450 | 256,400 |
| East Texas | 419,400 | 171,500 |
| Total Texas | 1,019,550 | 754,300 |
| California | 511,900 | 510,300 |
| East of Rockies | 1,689,700 | 1,408,700 |
| Total U. S. | 2,201,600 | 1,919,000 |

## Oklahoma, Kansas

RESTLESSNESS under martial law is growing in Oklahoma. Royalty owners charged last week that wells in Oklahoma City are being operated secretly at night. Meanwhile buyers still have not posted the $1 per barrel price demanded by Governor Murray.

The Kansas Public Service Commission will hold a hearing Sept. 29 to consider the application of landowners in the Raymond pool, Rice County, for permission to produce wells at the rate of 200 barrels per day.

## Kettleman Hills Gasoline Plant to be Rebuilt

LOS ANGELES, Sept. 18.—Fire and explosion destroyed a large part of Texas Oil Co.'s absorption plant and tankage in the Kettleman Hills, north dome, late last week, causing damage estimated at between $600,000 and $650,000.

Ignition of fumes and vapors escaping from the plant were blamed for the explosion and subsequent fire that occurred shortly before midnight Sept. 12, just as shifts were being changed and which, undoubtably accounted for the fact that there was no loss of life and only one operator was in any way seriously burned and he is expected to recover.

The Texaco plant was constructed to handle the natural gas production from Milham Exploration Co.'s discovery well on the north dome, and consequently pioneered the natural gasoline plant design in this area.

Reconstruction work on the unit is planned and until it is completed the wet gas allotted to The Texas Co. will be redistributed among other plants, members of the Kettleman North Dome Association. The new plant will incorporate the most modern and efficient equipment.

## Guy Sweney Dies After Long Illness

PEORIA, Ill. Sept. 17.—One of the outstanding members of the Independent oil jobbing trade in the country was removed upon the death on Sept. 12 of Guy I. Sweney, chairman of the board of the Sweney Gasoline & Oil Co. here. Mr. Sweney was 55 years old and died after failing health which began in 1929.

Not only did he build and head one of the prominent oil marketing companies in the middlewest, but he has also served as president of the Independent Oil Men's Association and as a director of the American Petroleum Institute.

He first entered the oil business with Joseph Bartles of St. Paul in 1908, organizing the Bartles-Sweney Oil Co., at Waterloo, Ia. One year later the Bartles-Sweney Oil Co. of Illinois was established, which later became the present Sweney Gasoline & Oil Co.

Guy I. Sweney

He was president of the company that bears his name until his health failed in 1929 when he retired. He was, however, immediately elected chairman of the board of directors.

He was interested in music and the arts, being a generous contributor to the Peoria Art Institute, to hospitals and civic campaigns.

He is survived by his wife, whom he married in 1925, following the death of his first wife in 1923; also by two brothers, Bruce T. Sweney, of San Francisco, and Paul D. Sweney of Peoria, and one sister, Mrs. H. C. Hill of Osage, Ia.

Mr. Sweney was born at Osage, Ia. on May 5, 1876. He was engaged in banking and railroading before he entered the oil business.

## Clayden Moves Office To Motor Car Center

DETROIT, Sept. 19—A. Ludlow Clayden, research engineer for the Sun Oil Co., is moving his headquarters from Philadelphia to the western regional offices in the First National Bank Bldg., Detroit.

Mr. Clayden's work is mainly connected with the development of new fuels and lubricants to meet the constantly changing requirements of the automotive industry. His new location will enable him to keep in closer contact with automobile technologists.

"While the petroleum industry has been able to produce anything demanded by the motor manufacturers," Mr. Clayden says. "development unquestionably can be assisted by closer co-operation between the two industries, particularly on probable requirements of a year or two hence."

## Institute is Asked to Direct Gas Tax Evasion Fight

ATLANTIC CITY, Sept. 18—That the American Petroleum Institute undertake the direction of the fight of the oil companies against evasion of payment of the state gasoline tax was asked at a joint meeting of the Northeastern, Southeastern and Eastern Regional Code Committees, here Sept. 17.

It was also recommended that E. G. Seubert, president of the Standard Oil Co. of Indiana, vice-president of the institute for marketing, appoint a committee to formulate a plan for action to be presented at the annual meeting of the institute in Chicago in November.

"The gasoline tax evasion situation has reached such a point that it is imperative that immediate steps be taken to remedy it," reads a a resolution adopted at the meeting here. "We request the American Petroleum Institute through its existing agencies or through additional ones to be created, to take over direct and co-ordinate through such state or local bodies as they deem advisable the duty of combating this evil in order that it may be eliminated at the earliest possible moment."

W. R. Boyd Jr., executive vice-president of the institute and Paul Hadlick, secretary of the division of marketing, spoke at the meeting on the growing practices of gasoline tax evasion.

# Smaller Margins Would Eliminate Uneconomic «Gas» Outlets

By E. L. Barringer

N. P. N. STAFF WRITER

A COLUMBUS, O., Sept. 16 PLEA to reduce gasoline margins to dealers, and to keep the retail price in relation to tank car markets, as a means of weeding out uneconomic outlets was made by J. L. Marsh, long time marketer in Youngstown, at the Ohio Petroleum Marketers Association convention here today.

Temporarily hardship would be caused to dealers through reducing their margin to 2 cents, Mr. Marsh said, but within six months uneconomic outlets would be forced to close, and this business diverted to good stations. In the end, stations deserving to survive would be in a better financial position than ever before, as increased sales would more than offset a smaller margin.

Leadership has been lacking, Mr. Marsh continued, and in place of meeting the fundamental economic problems of oil marketing our industry has played with the side issues, such as the code of ethics, lease and agency, and now third grade gasoline.

Three hundred Ohio marketers at the meeting frequently applauded Mr. Marsh. At the close of the address there was much discussion as to what methods could be used to meet this situation.

W. F. Burke, Burke Oil Co., Covington, Ky., suggested that a concerted marketing policy was needed by Independents, and that Independents should provide the leadership for our industry.

The customer is the keystone of oil merchandising, continued Mr. Marsh. His interests are paramount. At present we have been making the customer bear the burden of lack of leadership which has brought on too many outlets and in turn increased the cost of selling a gallon of gasoline.

Mr. Marsh's suggested structure was based on a fair retail price, and the retail price to be kept in line with tank car markets. For consumers not wanting to buy at the service station he would have a tankwagon price, 1 cent below retail. Dealers would be sold gasoline 2 cents below the retail price.

**J. L. Marsh**

**Youngstown, O., marketer who would reduce margins to 2 cents to cure oil marketing troubles**

Uneconomic outlets could not survive with a 2-cent margin, he said. These outlets would pass from the picture, and their business be transferred to the economic outlets. In turn, these economic outlets would have greater volume and would make a greater profit even if the margin was smaller.

"The cry is that a dealer needs a 3 or 4-cent margin to survive," he continued. "Yet, I understand the dealer's margin on third grade gasoline to be introduced soon over the state will be 1½ cents. How can you reconcile two such ridiculous statements—the dealer needs 3 or 4 cents yet give him 1½ cents on third grade?"

Mr. Marsh cited the price structure of 1918 and his visit to New York when a major company proposed a 3-cent margin for dealers to ask for a reconsideration of policy. Dealers then received a 2-cent spread.

"At that time I predicted a widening of the margin would attract so many dealers that our outlets would be doubled. If only my prediction had come true, and not have been exceeded," he said.

"Five years after my New York visit I met a dealer who knew of that mission. 'At the time I could have shot you,' the dealer said, 'because I thought you were trying to cut down my profits. Now I see that increasing my margin only attracted competition of other service stations and in the end my profits were reduced through smaller sales even if the margin was more,' " he continued.

Larger margins, or any of the side issues, are not a solution for our marketing problems, Mr. Marsh said. Our retail price must be fair to the consumer Our dealer's margin should be 2 cents so that economic outlets can make a profit, but so that uneconomic outlets will not be attracted by the mirage of larger margins. The relation of service station and tankwagon prices should be close so that one will not draw business away from the other.

Nine addresses were given the first day of the convention. On the second day there was a golf tournament.

E. W. Corn, field representa-

tive of the association, opened the convention with a review of the merchandising articles in the association's monthly magazine over the past year. Mr. Corn reviewed the highlights of the articles, and pointed out the significant items.

I. G. Monroe, another field representative, told of the association's field service of consulting with members for more efficient operation of their business. The association representative will spend several days with a member, going over bulk plant and station operations, accounting methods, and the cultivation of the marketing territory.

Many members volunteered testimonals as to the profitableness of the service, and told how it helped their business.

Gilbert Bettman, attorney general of Ohio, explained the purpose of penalties. Government should operate with income and expenditures in balance, he said, and should have no surplus. When bills are due the state expects payment in order to meet its obligations, and if payment is not prompt it is necessary to add a penalty, he said.

"Credits and Collections" was the subject of John A. Lyden, Lyden Oil Co., Youngstown. Through placing dealers on a c.o.d. basis, and taking notes for past due accounts his company was able to eliminate a collection cost of $4600 for salaries, to materially reduce bad debt loss, to reduce interest charges $3500 a year, and to halve the company's attorney fees of $600.

For retail accounts there is strict supervision of extending credit. Bills are sent promptly with the stamped notation that they are due in ten days. Second bills are sent on the twentieth of the month, and in the last ten days efforts are made to collect delinquent accounts.

"Have a credit policy, let your customers know about it, and stick to it," Mr. Lyden advised.

Details of Ohio's new gasoline tax law, placing the tax on receipts instead of sales, allowing a 3 per cent deduction for loss, and the checking of refunds through the applicant's petition against a duplicate sales slip sent in by the seller, were discussed by John Edwards, member of the Ohio tax commission.

Hubert Fuller, association attorney of Cleveland, spoke on the history of the writing of the new tax bill.

A. C. Ellinger, Canfield Oil Co., Cleveland, listed merchandise that could be sold at our stations. He pointed out that we are operating retail outlets and have the ability to sell anything that reasonably could be wanted by the customer. Mr. Ellinger also pointed out that channels for merchandise are changing in all lines, and that goods sold today through stations would not have been thought of years ago.

First in Mr. Ellinger's list were products produced by our industry, as soaps and greases. Then, automobile merchandise, as tires and accessories. Enclosed lubrication service could be enlarged to include car washing and polishing.

Parking space could be rented at a profit, golf balls for stations near courses, and dining cars on highway stations, were other suggestions. For the benefit of customers he listed cigarettes and candy, through vending machines, and such foodstuffs as ice cream and candy.

Goods should be well displayed on pump islands, the station windows, and in lubrication rooms, and kept clean, he advised.

J. J. Klay, the Parks-Klay Co., Lima, displayed a series of forms for bulk plant use in buying goods, and for the delivery system.

E. L. Barringer, *National Petroleum News,* Cleveland, discussed both sides of the third grade gasoline marketing policy.

In a business meeting the association voted to incorporate to take advantage of recent changes in Ohio laws.

## Plan New National Group Of Independent Jobbers

CHICAGO, Sept. 19.—C. Y. Hinchey, formerly executive manager of the Independent Oil Men of America, has issued a letter to former members of that organization and other independent jobbers announcing a plan to organize a national association of independent jobbers. A meeting will be called as soon as possible to create the organization.

The Independent Oil Men of American recently was forced to liquidate because of certain old debts that could not be cleared. Mr. Hinchey has purchased the equipment of the old organization and installed a temporary office at 4122 Sheridan Road, Chicago.

## Northeast Not to Give Away Gasoline Tanks

ATLANTIC CITY, Sept. 18.—Giving away to dealers of underground gasoline dispensing equipment is to be discontinued at once in New York state and New England, by vote of the Northeastern Regional Code Committee of the American Petroleum Institute, meeting here the 17th. H. N. Fuller, Sinclair Refining Co., New York, chairman of the committee, presided. The vote of representatives of 17 oil companies doing business in this territory was unanimous. To avoid the freezing of present accounts with their oil supplying companies, it was decided that, where an existing account is taken away by another oil company, the underground equipment of the new supplier may be put in without cost to the dealer. On all new accounts, however, the dealer is to pay for the equipment and its installation.

### Third Grade Higher in Canada

TORONTO—The new low priced or third grade gasoline recently introduced by Imperial Oil, Ltd. and other leading oil companies in western Ontario, was advanced 1.5 cents per gallon Sept. 10. The advance affected both tank wagon and service station prices.

In the Toronto, Hamilton, Brampton, Orangeville and Shelburne, Ont., area, tank wagon price of this grade is now 16.5 cents and service station 18.5 cents, exclusive of the 5 cent tax. It is 2 cents lower in the Border Cities, including Windsor.

# Loaning and Leasing of Equipment Eliminated in Rocky Mountains

By Roger B. Stafford

N. P. N. STAFF WRITER

DENVER, Colo., Sept. 19 LOANING and leasing of gasoline dispensing equipment to dealers has virtually been eliminated from Rocky Mountain territory. New gasoline dealers are now required to buy their dispensing equipment direct from the manufacturers or jobbers of equipment. The policy does not apply to stations under lease and license arrangements.

The idea of gasoline distributors ceasing to lease or loan dispensing equipment to their dealers had its birth in this territory—in Montana. It was an outgrowth of the Pacific coast plan of selling equipment to dealers under convenient sales contracts.

Until the Shell Oil Co. and Richfield Oil Co. entered Montana as marketers, it was the practice in the Rocky Mountain territory for distributors to lend or lease equipment to dealer outlets and also to large consumers. Shell and Richfield considered using the Pacific coast equipment sales plan to which they were accustomed. Other distributors in Montana took under advisement this plan but, in discussions of the whole equipment policy, the idea of complete elimination of loaning and leasing was evolved.

State code committees in the six Rocky Mountain states that come under the jurisdiction of the regional code committee of which W. H. Ferguson, executive vice president of the Continental Oil Co., is chairman, fell in line, one after another, until a month ago Colorado distributors announced they had adopted the policy, the last of the six states.

In part of the Rocky Mountain territory motor oil distributors are requiring that dealers buy oil dispensing outfits. However, this policy has not been applied to all of the six states because those marketers who distribute motor oils solely and none of the lighter products, believe it is necessary to furnish tanks and pumps to their outlets.

The smaller jobbers as well as the major companies have fallen in line with the plan, Mr. Ferguson believes. This is true even in Colorado, which has approximately 200 small Independent marketers.

In the Rocky Mountain states abolition of loaning and leasing also applies to equipment for the handling of kerosine, distillate, fuel oil, greases and other petroleum products with the exception here and there of motor oil outfits. The resolutions of the state committees, however, do not note the exception.

The state code committees of this territory have also decreed against free maintenance, service or repairs of dispensing equipment except that existing loaned pumps may be painted and trademarks, globes and signs may be maintained in good condition.

WHEN the business of a loan pump and tank customer is gained by a competing company, the loaned equipment may be sold to the new supplier on a basis established by each state committee.

In Colorado, for example, the base price is the current market for for new pumps less 20 per cent depreciation per year down to 50 per cent of the current market. For tanks the base price is the current market less 10 per cent depreciation per year down to 50 per cent of the current market.

In Wyoming the list price of the equipment is taken as the base price. Deductions for depreciation are the same as in Colorado with 50 per cent of the list price as the minimum price for the pumps and tanks.

In Colorado the entire cost of installation is to be added to the selling price but the Wyoming resolutions specify the addition of a "reasonable installation cost." No depreciation is allowed anywhere on installations costs.

THE various state resolutions provide that dispensing equipment now in place shall be permitted to remain but without repair, service, or additional parts, as previously mentioned. New hose, nozzles or meters are not to be supplied at supplier's expense. No dispensing devices or equipment that wears out shall be replaced by the owner or any competitor. New or reconditioned equipment on hand Aug. 1 may be sold dealers for cash at the fair value of the equipment.

Copies of the various state resolutions were sent all marketers in the territory together with a copy of the code of marketing practices as revised this year by the Federal Trade Commission. The marketers were asked to sign the revised code even if they had signed the one promulgated by the commission in 1929.

Attached to each state code committee equipment resolution was this pledge which marketers were asked to sign and return to the state committee:

"I hereby approve the resolution of the (name of state) state sub-committee above set out, and agree that effective Aug. 1, 1931, I (we) will absolutely discontinue the leasing or loaning of all such equiment in consideration of similar agreements upon the part of other marketers."

The date was earlier in some states than the one given here.

# Change in Basic Law of Oil Needed To Avoid Recurring Disorder

ATLANTIC CITY, Sept. 18

THE oil industry will be subject to periods of disorder and cannot be operated with proper efficiency as long as the present basic law of oil and gas exists, which forces competition in the production of crude between leases in the single oil pool, Dr. Joseph E. Pogue, consulting engineer, New York, told the National Petroleum Association at its convention here.

Revision of this basic law, to provide co-operative and orderly development of oil pools, is technically simple, he stated, but "all the forces of inertia, ignorance, tradition and misdirected self-interest stand in the way of this reform."

Referring to the efforts of the industry the last few years to regulate production in the flush oil fields by proration, Dr. Pogue said there was nothing unsound in such efforts if they were carried on in harmony with the fundamentals of supply and demand. "The hazard lies not in the absence of knowledge as to how, for example, production can be scheduled and controlled," he said, "but in the pervasive presence of the human elements of ignorance and cupidity that set the efforts of reason at naught."

After reading his paper, Dr. Pogue was asked to discuss the significance of the crude oil potential, a subject on which he has done considerable work, which was presented last winter in a paper before the American Institute of Mining Engineers.

The point was made by him that the primary reason why control of production, which has been more or less effective, did not prevent a drastic decline in prices was because production fundamentally was not really restricted but large amounts of capital were devoted to drilling wells which had to be pinched in.

In this way, he pointed out, a large hidden inventory of oil was built up, although the industry has not yet realized that the crude oil potential is an inventory. Nearly all schemes for price fixing have broken down because of their failure to prevent the accumulation of stocks, he said.

"It makes no particular difference whether stocks are visible or invisible," said Dr. Pogue. "As they accumulate, the effect is adverse. The consideration of the crude oil potential as an inventory offers a satisfactory explanation why crude oil prices declined in the face of drafts from aboveground storage. By the same token, it is obvious that a favorable price for crude oil cannot be maintained until the combined inventory, including crude oil stocks and the crude oil potential, is permitted to decrease."

Referring to refinery operations, Dr. Pogue said plants in this country, now facing a sharp seasonal demand, which they have not recognized as such, a week ago were manufacturing gasoline at a rate which increase the total of gasoline stocks in the country to 60,000,000 barrels as of April 1 next. Statistical committees in the industry which have recently projected their study of gasoline supply and demand figures into winter months, estimated that 40,000,000 barrels would be all the industry will be warranted in carrying in stocks on that date. Stocks on April 1 last year were 48,000,000 barrels.

The text of Dr. Pogue's paper follows:

## By Dr. Joseph E. Pogue

EVENTS of the past few years have clearly demonstrated that the petroleum industry is subject to fundamental economic laws which efforts within the industry are powerless to circumvent. This basic fact is perhaps not concisely appreciated in all quarters, for artificial action has from time to time influenced price movements and thus had the appearance of effectiveness, but the fact remains that *price levels*, as distinguished from price fluctuations, are still determined, under competition, by the broad conditions of supply and demand. It is only by modifying the elements of competition that the resultants of normal economic law can be deflected by collective effort.

It is coming to be generally recognized that the particular efforts to control the supply of crude petroleum that became conspicuous in the oil business since 1927 resulted in overexpansion and overdrilling, and thus became an important factor in contributing to the price debacle of 1931. It is not so generally appreciated, however, that oil prices in 1931, falling to uneconomic levels, were under the same compulsion to rebound therefrom as they were to recede from the higher, artificial levels of 1929-1930. In each instance, artificial efforts were unable to maintain a price level out of line with basic conditions.

The recent extraordinary and apparently extra-legal actions of the Governors of Oklahoma

and Texas were incidental to the price rebound and the medium through which the readjustment was facilitated; they cannot be properly regarded as causal. The importance of this action would appear to lie in the contribution that these state officials have made toward a breaking down of legal inhibitions that stand in the way of reforms so signally needed in the petroleum industry. If this remarkable example of direct action should prove to be an opening wedge in the revision of the absurd and illogical law of oil and gas that disturbs the ethics and economics of a great industry, an important forward step will have been taken.

It is apparent to many observers that the petroleum industry suffers from two flaws, one peculiar to oil business and the other common to many other lines of activity. Fortunately both flaws are subject to correction, although the accomplishment is not easy and progress would be facilitated by a more general appreciation of the difficulties and what is needed in the way of correction.

The first flaw is of long standing and pertains to the competition forced by law between leases in the single oil pool. This form of competition is a great handicap to the orderly and efficient operation of the oil business, for it inevitably creates both physical and economic waste, raises costs, and renders the industry insensitive to retardation by falling prices.

These conditions are brought about by the fact that the law, as now applied to oil and gas, does not protect underground oil property, but on the contrary legalizes the robbery of this property by aggressive neighbors. Thus intelligent owners of oil property cannot be guided by sound objectives, but are forced to offset the efforts of the least enlightened operators, and hence the whole oil business is periodically reduced to the economic level of its lowest common dominator.

So long as this law exists, the oil business will be subject to periods of extreme disorder and cannot be operated at any time with proper efficiency. The solution of this difficulty is technically simple—a revision of the basic law of oil and gas—but all the forces of inertia, ignorance, tradition, and misdirected self-interest stand in the way of this reform.

The second serious flaw in the petroleum industry is its overdevelopment. As all oil men know, there are too many oil wells, too many refineries, too many filling stations, and too much oil in storage; in short, too much capital has come to be engaged in the industry. Such a condition, in an era of maturing demand, brings into operation the law of diminishing returns, and it is futile to attack this problem except at its source.

This flaw, however, is not insoluble; it is, in fact, more susceptible of correction than the matter of inter-lease competition, for a period of low prices will create renewed balance through the elimination of high-cost facilities and a retardation of drilling and discovery. The danger here is that artifice will retard or even prevent the slow, but gradual, correction of this factor by removing the brakes before the machine has lost its momentum.

We have remarked on other occasions that artificial interference with the orderly working out of economic law is a dangerous experiment. And certainly events of the past two years have tended to confirm this statement. Yet there is nothing inherently unsound in such efforts, if undertaken with skill and wisdom and conducted with due regard to immutable fundamentals.

The hazard lies not in the absence of knowledge as to how, for example, production can be scheduled and controlled, but in the pervasive presence of the human elements of ignorance and cupidity that set the efforts of reason at naught. If these human failings can be mastered, the course of the industry can be directed with enlightenment and progress. Unless and until they can be, the artificial fac-

## N. P. A. Officers Re-elected

THE entire list of officers and board of trustees of the National Petroleum Association were re-elected by acclamation at the Atlantic City meeting, with the addition of two new trustees, making 21 members in the board of trustees. The new trustees are O. D. Robinson, Republic Oil Co., Pittsburgh, and C. J. Leroux, Valvoline Oil Co. This is the fifth term for E. M. Lyons as president of the association.

The officers and trustees are as follows:

**Officers**

President .....E. M. Lyons
First Vice-President.....P. S. Tarbox
Second Vice-President....N. H. Weber
General Counsel.....Fayette B. Dow
Traffic Attorney.....Willis Crane
Attorney .....Horace L. Lohnes
Attorney .....Harry S. Elkins
Recording Secretary .....
..... Herbert G. Eaton
Assistant Recording Secretary
..... E. W. Smiley
Treasurer .....G. B. Hunter

**Board of Trustees**

H. B. Carpenter.....Ohio Oil Co.
Fred G. Clark.....Fred G. Clark Co.
Sheldon Clark.....Sinclair Rfng. Co.
Earle M. Craig.....Freedom Oil Wks.
G. C. Davison....Tri-State Rfng. Co.
Frank B. Fretter .....
.....National Refining Co.
W. V. Hartmann.....Gulf Rfng. Co.
W. T. Holliday .....
.....Standard Oil Co. of Ohio
O. P. Keeney .....Keeney Oil Co.
Otto Koch .....Kendall Rfng. Co.
H. A. Logan.....United Rfng. Co.
E. M. Lyons.....Tiona Rfng. Co.
A. W. Scott .....
....Wolverine-Empire Refining Co.
C. G. Sheffield .....
Standard Oil Co. of New Jersey
C. L. Suhr .....Pennzoil Co.
P. S. Tarbox Independent Rfng. Co.
N. H. Weber.....Pure Oil Co.
A. C. Woodman....Richfield Oil Corp.
R. A. Wotowitch.....
.....Henry L. Doherty & Co.
C. J. Leroux.....Valvoline Oil Co.
O. D. Robinson.....Republic Oil Co.

**Fire Marshals Association**

R. A. Wotowitch, Trustee in Charge
President.....James H. Herbert
Vice-President .....A. J. Fruth
Secretary-Treasurer .....
.....Sherman R. Brown

tor in industry is more apt to prove a boomerang than a catapult.

In conclusion reference may be made to a statement of the Committee on Petroleum Economics in its report to the Federal Oil Conservation Board on Nov. 6, 1930, as folows:

"It perhaps should be stated that curtailment of current supply . . . . should not be expected to provide a cure for the fundamental economic maladjustments existing in the petroleum industry, which arise from the fact that this activity is overdeveloped, overcapitalized, and rests upon an unsound method of competitive offset drilling. Curtailment of production alone cannot remedy these conditions; to reach the root of the difficulty will require restriction of drilling, abridgement of plant expansion, and a modernization of the prevailing method of crude oil production to place this department of the business in low-cost brackets and on a competitive basis with the rest of the world."

# Government Supervision of Private Production Control Suggested

ATLANTIC CITY, Sept. 18

ADMINISTRATIVE supervision by the federal government over voluntary private co-operation to control drastic over-production, leaving the basic safeguard of the Sherman anti-trust law to protect the public against artificial restrictions, was suggested as a means of relief to the oil industry by James A. Emery, general counsel for the National Association of Manufacturers, before the National Petroleum Association.

Pointing out that injurious business conduct in agricultural and other combinations is controlled through such administrative orders, by a federal government agency, rather than through criminal prosecutions Mr. Emery said the natural resource industries are th obvious area for immediate application of such a policy.

"The President and official commissions recognize and recommend it," he said. "The existing situation demands it."

In advancing this principle of industrial control, Mr. Emery said in part: "If it be true that the government can adequately protect the public interest while urging agricultural co-operation to control a surplus and prevent price decline, why is it wise to continue a policy which prohibits indispensable co-operation to prevent an equally destructive surplus in natural resource industries, when such control may be readily accompanied by equal protection for the public? What is sauce for the agricultural goose ought to be for the industrial gander.

"It is no longer necessary to argue the social necessity for rational control of production. It is not only universally recognized but within a few brief weeks the governor of a sovereign state has sought to restrict production within your industry by force. At present the crisis in cotton inspires a rising demand for state legislation to control cotton planting.

"But economic problems, permanent in their nature, are solved neither by force nor statutes, for action must be adapted to circumstances. Intelligent co-operation to adjust supply to consumption can be left neither to the arbitrary agreement of private individuals nor the formulae of legislators. The protection of the public interest against exploitation by a standard of conduct is no more indispensable than application of the guiding intelligence of responsible management, adapting their co-operation to the shifting circumstances of industry.

"I am urging for consideration neither the government conduct of business, through the determination of production or prices nor the untramelled co-operation of private producers, to restrict output, but concerted application of the judgment and action of the informed management of an over-producing industry under the administrative check of an executive body able to accurately ascertain the relationship of any program of adjusted production to average or expanding demand. You cannot put free industry into a straight-jacket nor leave combination unchecked by an overseeing agency that protects the public against exploitation.

"It is neither desirable nor practicable to modify or repeal the basic safeguards of the Sherman Act. Human nature being what it is, there are always likely to be combinations which threatens the freedom of trade or the trader, but if the public interest is not served by a continuing surplus in foodstuffs, it is not benefited by the waste of our natural resources of demoralization and consequent unemployment in the industries which develop them.

"Uncertainty is the brake upon depressional recovery. Men in doubt do not act. Is it not, therefore, wise to provide the means of dispelling doubts which prevent concerted action essential to the control of destructive over-production?"

As a means of dispelling fears which business generally holds today of legal action to prevent concerted action essential to the control of destructive over-production, Mr. Emery advocated:

Litigation with the co-operation of the Department of Justice, in the public interest, to determine whether concerted co-operation among competitors to control within rational limits, a chance condition of over-production is restraint of trade, or protection and promotion of commerce.

An inquiry by a Congressional Committee into the economic effect of the present method of enforcing the Anti-Trust laws.

Consideration of the extent within which it is practical and wise to control injurious business conduct through administrative orders.

Through legitimate trade organizations to study rights and opportunities for practical co-operation within the present laws.

# Coking Outside Cracking Zone Lengthens Run and Increases Gasoline Yield

ATLANTIC CITY, Sept. 18

METHODS of more suitably and profitably disposing of portions of crude now generally considered as either waste or troublesome by-products, the recent development of various processes to facilitate meeting the changing demand for improved types of lubricants and motor fuels, and the competition to be expected in the immediate future from refineries now operating or being built in foreign countries absorbed the interest of refiners at the meeting.

The changing siuation in foreign markets, for American petroleum products is a permanent and growing condition, in the opinion of C. J. Bauer, of the Standard Oil Co. of New Jersey, who presented concisely the results of foreign expansion of refining facilities, hastened by the disturbance and dislocation of foreign trade balances. This dislocation has led many countries to give especial inducements to develop the oil business at home, to the extent of even monopolies, as has been done in Spain.

"This country is losing its export markets and will continue to do so," stated Mr. Bauer in explaining some of the reasons for this trend; in 1924 the U. S. supplied over 35 per cent of the foreign demand for petroleum and its products; in 1931 our share of this trade will probably be not over 20 per cent.

By a long series of experiments Universal Oil Products Co. engineers have succeeded in producing a coking retort which appears to them to answer the troublesome question of how to dispose of heavy fuel oil residues from the cracking still. The disposal of this coke has been one of the major difficulties in cracking, especially with the Dubbs as well as other processes which have a relatively large yield of coke.

The briqueting of coke presents difficulties which have not yet been solved by any method which has been accorded general commercial recognition. Its use as a powdered fuel has been made more or less satisfactory in some installations, but has not been generally adopted, chiefly on account of the high volatile content of the coke as usually produced.

Alfred Fisher, Universal engineer with many years of experience in the coal coke and gas industries, has been working on this problem for some years and presented to the meeting the results attained by the new system for making a marketable product from the coke and to increase, he stated, the yields of high anti-knock gasoline by extracting the last of the volatile matter from the coke, which, in the nature of the operation, cannot be removed during the cracking operation with a much greater sacrifice of other advantages.

THE apparatus he describes consists essentially of a slowly rotating, 30-inch diameter, nickel-chromium alloy tube, into which the heavy residue is pumped and heated to a temperature as high as 1650-1700 F. immediately outside the tube wall. The volatile fraction is conducted to a fractionating tower, from which the lighter constituents are removed overhead to be added to the pressure distillate. The heavier ends removed from the bottom of the tower are disposed of as their properties dictate, and can be returned to the retort charging stock to be re-coked if desirable.

The rotating retort used in the large scale experimental work is some 26 feet long and is rotated at 2-3 r. p. m., at a temperature at the start of a cycle of about 1250 F. This temperature is raised gradually to 1650-1700 F., or until such time as a layer of coke covering the inner tube surface is formed from two to three inches thick, after which the temperature is rapidly lowered. A deeper layer of coke is advisable, he stated, on account of the high resistance to heat transmission encountered through the thicker coke layer.

ONE of the unique features which developed during the work on the rotor was the fact that, when the tube is cooled after being partially filled with coke, the contraction of the tube breaks the coke layer which is thus discharged automatically and without other mechanical means for its removal.

The retort has no scrapers or other agitating equipment, and in only one case has it failed to thus automatically discharge the coke, and in that instance the retort was operated under the most severe conditions for the definite purpose of finding out if condition could be found which would prevent the discharge. During the heating and contraction of the retort tube it expands several inches in circumference and in turn contracts, breaking away the coke which otherwise would adhere closely to the inner wall.

The entire cycle in this retort is approximately six hours, including heating and filling, cooling and discharge. The author stated that this size of retort was adopted for the reason that this was the largest diameter tube which the manufacturers could produce. Since the work was begun the makers have made arrangements to produce tubes of six feet diameter. It was stated that this size retort is a fair size for commercial practice.

The coke so produced has a volatile content of less than five

per cent, is very hard and dense, making it suitable for purposes heretofore more or less closed to it, industrial as well as domestic. As high as 60 per cent or more of gasoline distillate is obtained from heavy residues, the remainder being coke and non-condensable gases.

The author stated that this process is very sensitive to certain changes in manner of operation, especially to temperature changes. One of the major applications of the method, it is stated, may be the application of the retort to the gas-making industry, especially for industrial uses. Gas and gas production is one of the potential major outlets for heavy fuel oils and residues.

By properly coking heavy oils, gas can be produced directly, by operating to make a maximum per cent of gas from the cracking coil; the residue may be coked to also produce a maximum of gas, and the coke in turn may be used to generate producer gas in the conventional manner.

**Naphtha Reforming Units**

Naphtha re-forming units, and the development of cracking processes utilizing both vapor and liquid phase conditions for the improvement of the knock rating of motor fuels are two of the most important phases of refinery development produced during 1931, according to D. G. Brandt of Crew-Levick Co., in discussing the year's high spots in refining technology and allied industries.

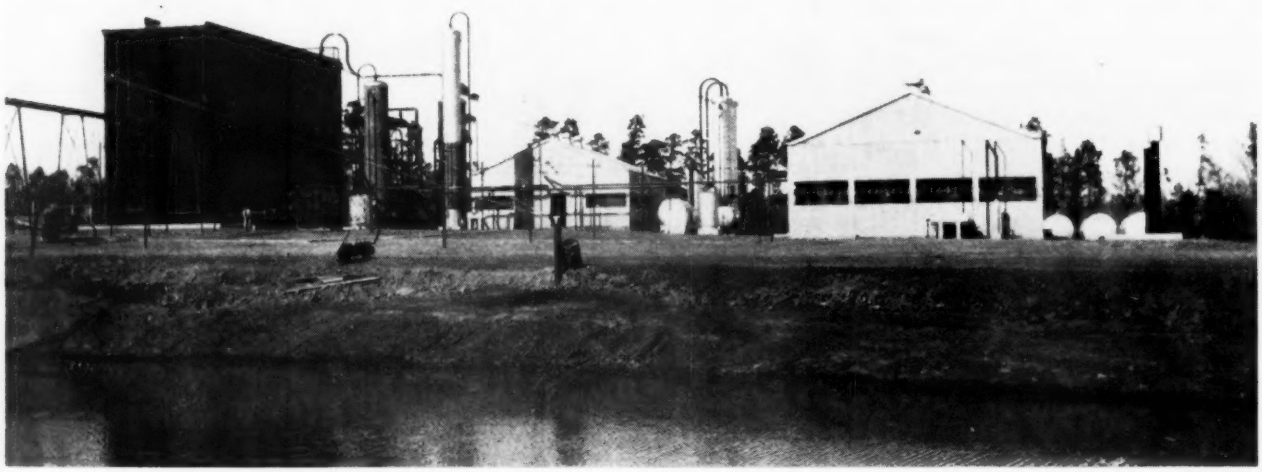
Re-formation of the heavy ends of gasoline distillate so that the blend of the light and re-formed cuts yield a 70-71 octane number fuel will permit profitable disposal of low knock rating fuels otherwise slow on the market, according to the author, and it is this greater certainty of marketability which will make such an operation profitable in spite of the extra processing cost, and the fairly high losses during the re-formation. Where low grade naphtha can be sold at a figure giving little margin between it and the higher grades in the market the re-forming of the distillate will not prove profitable, since the extra cost is considerable, the gasoline yield being 80-82 per cent of the charge.

Employment of both vapor and liquid-phase operations for the production of cracked distillate has proved advantageous in some cases recently, and it appears that the liquid phase fuel has a stabilizing effect when blended with the vapor-phase fraction, according to the author. Stabilization of cracked distillate and naphtha recovered from plant gases, to remove the propane and part of the butane present has solved the problem of controlling the vapor pressure of fuels, which is now imperative.

Experimental work has shown that vapor lock in motors is due in great measure to improper design and location of fuel systems in cars, and the problem has been pointed out to automotive manufacturers, who are undertaking the correction of this difficulty, Mr. Brandt reported.

Production of lubricants with very high qualities by hydrogenation, and by synthesis from cracked petroleum fractions by the use of aluminum chloride have been developed during this year, the speaker stated, or their development has reached to final stages. Commercial production of these materials in large quantity for the general public must wait on the reduction of the cost differential, he believed.

Final adoption of the tentative standard method for determining the knock quality of fuels and its interpretation in terms of octane numbers, has been completed, including the adoption of the engine a few days ago, the selection of primary and secondary reference fuels for comparison, and the standard method of procedure, has been accomplished, which gives the industry means for accurate comparison of knock ratings, eliminating the unsatisfactory "benzol equivalent" and other methods used until now without good results. The new yardstick will enable the proper comparison of test results obtained anywhere and will prevent the confusion incident to the use of older means of designating this property so rapidly growing in importance.



**High pressure absorption natural gasoline plant recently completed by Stearns Rogers Co., of Denver, for a group of companies in Louisiana. This is the fourth plant of this type constructed by this company in the last year**

# Refineries Outside the United States

By C. J. Bauer*

*(Presented before the National Petroleum Association, Atlantic City, Sept. 16-18)*

FOREIGN oil developments never seemed very important to the American, beyond their geographical interest, until the latter part of 1929, when such countries as Rumania and Russia were reported as causing trouble in the American export market.

Since Rumania started to produce crude—two years before the Drake well was drilled—the world has consumed 20,000,000,000 barrels of oil. Of this amount the United States contributed 66 per cent or about 13,500,000,000 barrels; the remainder came from 26 other countries. Last year the United States' share was 63 per cent. Its highest percentage of world production was in 1923—72 per cent. This year world production will approach 1,400,505,000 barrels or 3,837,000 barrels a day of which the United States will contribute about 2,325,000 barrels a day or only 60.59 per cent.

New sources of supply, economic conditions and legislation have played leading parts in changing the refining and producing map of the world. The effect of these changes has been a decided decline in exports of petroleum products from the United States.

Since refineries and raw material are so closely related, it might be well to review the consumption and supply situation.

In the last decade foreign consumption has increased about 136 per cent to 1,585,000 barrels a day, while exports from the United States have increased but 121 per cent. One would say that this is not a bad ratio.

Based on the best figures available, consumption of crude and products outside of the United States will be approximately 1,680,000 barrels a day during 1931. This is 1,000,000 barrels more than the daily average of eleven years ago, or an increase of about 150 per cent. United States exports in 1931 will probably be in the neighborhood of 341,000 barrels a day—an increase of only 76 per cent in 11 years. Looking over this chart we find foreign consumption increasing at a fairly steady pace, with foreign production following the same general trend. A great part of the increased consumption is due to the growing use of the automobile. Ten years ago there were 1,700,000 motor vehicles registered in foreign countries; at the end of 1930 there were 9,000,000, an increase of 434 per cent. This compares with an increase of 187 per cent during the same period in the United States. In the last five years motor vehicles increased 97 per cent abroad and only 33 per cent in the United States.

During 1921 the United States through its exports, supplied 29 per cent of the foreign demand. This increased in 1924 to a little over 35 per cent. Since then, except for the year 1926, the percentage supplied by the United States has shown a steady decline. In 1930 the United States supplied 27 per cent of foreign consumption; this year its share will not be over 20 per cent. This country is losing its export markets and will continue to do so. There is

*Standard Oil Co. of New Jersey.

## Summary of Foreign Refineries

**as of Sept. 1, 1931**

**Present Plants**

| Country | Number | Daily Avg. Crude Cap.* |
|---|---|---|
| Mexico | 4 | 140,000 |
| Canada | 20 | 117,700 |
| Cuba | 1 | 2,500 |
| **Total North America** | **25** | **260,200** |
| Venezuela & D. W. I. | 9 | 323,100 |
| Argentine | 16 | 56,770 |
| Trinidad | 5 | 28,700 |
| Peru | 2 | 17,050 |
| Colombia | 1 | 7,000 |
| Ecuador | 3 | 650 |
| Bolivia | 2 | 350 |
| **Total South America** | **38** | **433,620** |
| Russia | 47 | 400,000 |
| Rumania | 51 | 154,750 |
| Great Britain | 14 | 111,500 |
| Germany | 30 | 33,200 |
| Poland | 49 | 28,200 |
| France | 3 | 14,500 |
| Austria | 7 | 14,300 |
| Czechoslovakia | 11 | 9,100 |
| Hungary | 7 | 7,000 |
| Holland | 3 | 6,850 |
| Jugoslavia | 4 | 3,250 |
| Belgium | 7 | 1,900 |
| Italy | 7 | 1,900 |
| Sweden | 1 | 1,250 |
| Spain | 2 | 1,150 |
| Norway | 1 | 1,000 |
| Latvia | 1 | 300 |
| Denmark | 2 | 150 |
| **Total Europe** | **247** | **790,300** |
| Persia | 1 | 95,000 |
| Japan | 14 | 23,350 |
| India | 7 | 24,800 |
| Iraq | 2 | 2,150 |
| **Total Asia** | **24** | **147,300** |
| Egypt | 2 | 7,400 |
| Canary Islands | 1 | 5,000 |
| **Total Africa** | **3** | **12,400** |
| Dutch East Indies | 10 | 108,600 |
| Sarawak | 1 | 15,000 |
| Australia | 3 | 4,350 |
| **Total Oceania** | **14** | **127,950** |
| **Total Foreign** | **351** | **1,771,770** |

*Capacity in Barrels of 42 Gallons.

**Plants Building**

| | |
|---|---|
| Canada | 2 |
| Argentine | 1 |
| Germany | 1 |
| France | 10 |

no lack of supply of foreign crude and it is now permanently in competition with that from United States fields.

At the present time foreign production is 1,483,077 barrels a day, not quite large enough to take care of estimated consumption of 1,680,000 barrels a day. The refining capacity of 1,771,770 barrels a day, if properly located, could fully supply the demand. The daily potential foreign production is 2,298,577 barrels. Adding the potential of the United States we get a total of 7,000,000 barrels, or about 2,000,000 barrels a day more than we figure will be necessary to supply the world's consumption five years from now.

The circles shown on the accompanying map show refinery centers ranging in size from 1000 barrels for the smallest to 223,000 barrels the largest, which is the one at Baku. The refining areas with a capacity of less than 1000 barrels are indicated by the cross. The plants used in the compilation were those in operation on Sept. 1, 1931. Only the crude capacity was considered.

The map will give a comparative idea of the combined capacity of the refineries outside of the United States. On Sept. 1, there were 351 plants abroad with a total capacity of 1,772,000 barrels. This compares with our 450 domestic plants with a capacity of about 4,000,000 barrels.

### Canada

Canada's present crude supply is only 3547 barrels per day. The Turner Valley field is producing 82 per cent of this amount.

The 20 Canadian refineries, with 117,700 barrels daily crude capacity, can easily supply the demand of 104,345 barrels a day.

These plants are situated along the southern border of Canada near the consuming centers, the largest of which is Montreal. The two plants here have a total crude capacity of 39,000 barrels. The next most important refining center is at Sarnia. The two plants there have a capacity for 23,200 barrels of crude.

### Mexico

Mexico's position in today's picture is unimportant as compared with 10 years ago. At that time the country was producing over 500,000 barrels and had a refining capacity of 343,000 barrels per day. Today, Mexico is producing a little over 100,000 barrels per day and the four remaining refineries have a total capacity of only 140,000 barrels. Three of those plants are in Tampico, and have a crude capacity of 115,000 barrels. The other refinery is at Minatilan, on the Isthmus of Tehuantepec, and has a rate throughput of 25,000 barrels.

### South America

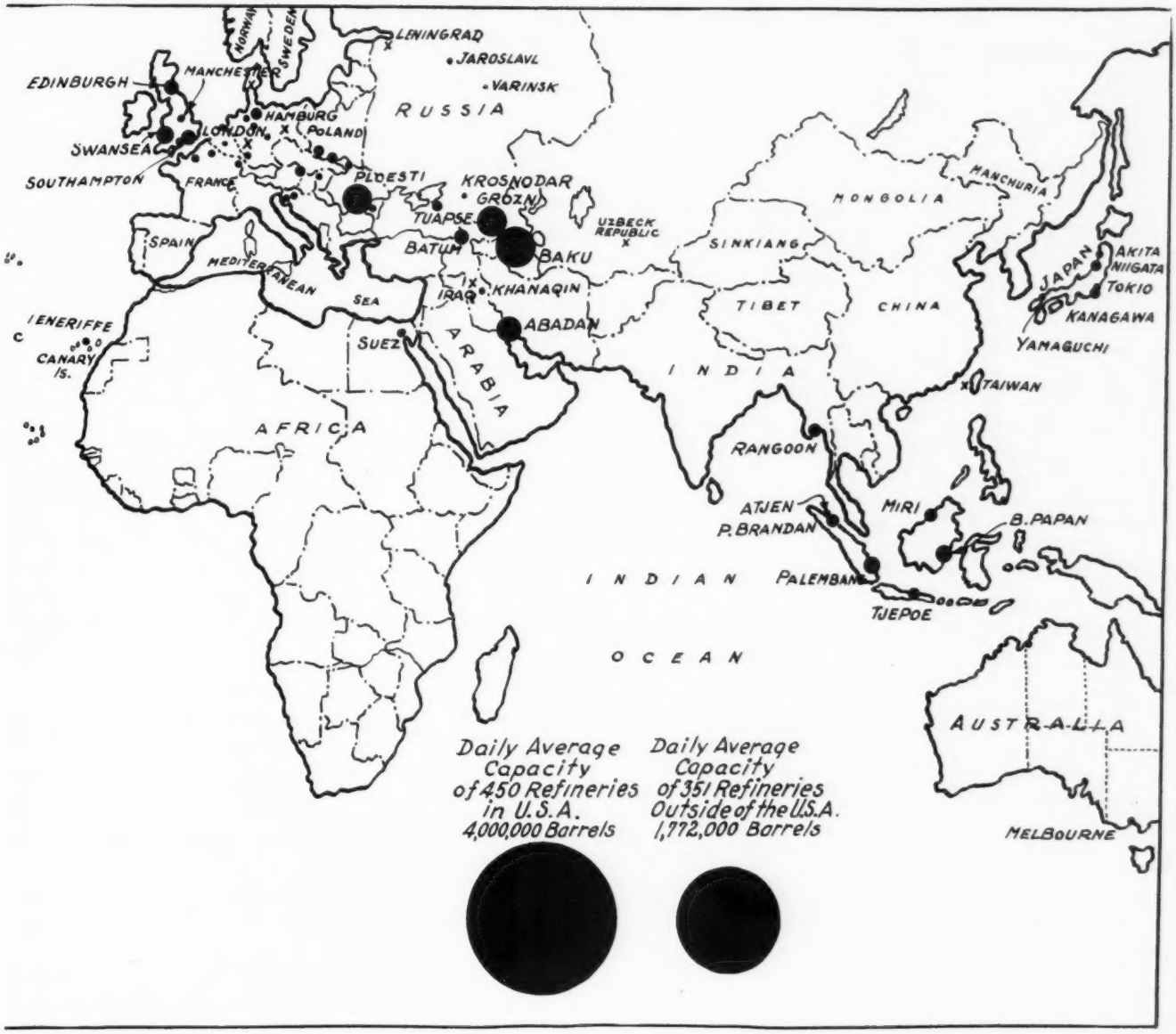
South America is of special interest to us because of the proximity of its important fields to the United States.

The present production of 461,902 barrels per day from all the South American countries is about 39 per cent more than the consumption. The refinery capacity of 434,000 barrels per day is far in excess of the demand, giving South America an exportable surplus. Geographically this surplus can compete with products from the United States in the South American and European markets.

Refineries are locted in Venezuela, Colombia, Ecuador, Peru, Argentina, and Boliva. Brazil and Chile are the two large consuming countries which at the present time do not have a crude supply or a refinery.

The largest refineries in South America are located on the Dutch islands of Aruba and Curacao on the north coast of Venezuela. The plant on Cura-

# OUTSIDE THE UNITED STATES




cao has a rated capacity of 165,000 barrels per day. It is a modern plant capable of producing a complete line of products.

Next in importance is the refinery on the island of Aruba. It has a capacity of 110,000 barrels per day.

The only other plant outside of Venezuela which runs solely on Venezuela crude is also on the island of Aruba. It can top 22,000 barrels of crude daily.

There are six plants on the mainland of Venezuela. The refinery at San Lorenzo is the largest, with a capacity of 17,000 barrels per day, and manufacturers a complete line of products for the local markets. The five others are small topping plants with a total capacity of 9100 barrels daily.

The only refinery in Colombia is located at Barranca Bermeja. It has a capacity of 7000 barrels a day. Crude is supplied from the production in Colombia, and the products are used locally.

There are two refineries in Peru. The one at Talara, with a capacity of 16,800 barrels per day is the larger. Crude for this plant is supplied by the fields in Peru, and products are consumed mainly in the neighboring South American countries. The other is a very old plant and has a capacity of only 250 barrels per day. It is located at Zorritos.

In the Argentine there are 16 refineries with a total capacity of 50,000 barrels per day. Three of these are located in the Comodoro Rivadavia area and have a total capacity of 11,500 barrels per day; two at Bahia Blanca with 3700 barrels capacity per day, and eight at La Plata, just outside of Buenos Aires, with 40,050 barrels per day capacity. The largest refinery is owned by the government at La Plata. It has a capacity of 16,000 barrels per day.

In Trinidad, just off the eastern coast of Venezuela, there are five refineries with a total capacity of 28,700 barrels per day. The unit at Punta Pierre with a capacity of 21,000 barrels per day is the largest on the island. The five other refineries belonging to as many companies have a total capacity of 7700 barrels. Crude for these refineries comes from local production.

### Europe

Europe, with a consumption of 833,000 barrels per day, has a total production of only 591,000 barrels, and a refining capacity of 769,000 barrels. When the plants now building and proposed in France, Spain, Russia, and Germany are completed, the European countries will have enough refining capacity to take care of the demand. With the participation of Great Britain and France in the future production of the prolific fields of Iraq, it is quite likely that within the next five years the Europeans will have a crude supply located close enough to the refining centers so that they will not be reliant upon crude and products from the United States.

From the size of the big black spot in Russia it can easily be seen where the largest refining center in Europe is located.

### Russia

Incidentally all figures from now on referring to Russia are quoted from Soviet publications, and as such cannot be verified.

In 1901 Russia was the world's leading producer of crude. In 1902, however, the United States again surpassed it and Russia held second place until 1918 when it dropped to third. Except for one year it remained third until September of last year when its yield of crude averaged over 400,000 barrels per day and it supplanted Venezuela as the second largest producer. During July, 1931 the output of crude averaged 449,000 barrels per day.

After the revolution and civil war which brought about the disorganization of industrial activities and the threatened complete collapse of Russia, the Soviets had to look for an industry having an exportable product which would require little investment and immediate profit. The oil industry offered the solution and since 1922 it has been the favorite enterprise.

Reserves of Russian crude are usually referred to as being almost unlimited. In spite of rather extensive wildcatting no new fields of great importance have ben discovered. Each year brings reports of new fields, larger and more important than those at Baku, but plans for the following year's operations do not seem to bear out reports.

According to Russian publications the present crude capacity of all the plants in Russia is approximately 400,000 barrels per day. During July, 1931, crude runs to stills averaged 395,000 barrels daily and for the first seven months of this year 359,000 barrels per day. For the year 1931 the Soviets plan to run about 90 per cent of the crude production. This compares with 82 per cent in 1930, and only 63 per cent in 1923. Progress made in the modernization of refineries and utilization of cracking installations can be noted in the increased yield of gasoline from the Russian crude runs. In 1931 the plans called for a yield of 18 per cent. This compares with 14 per cent last year, and only 2.6 per cent in 1923.

The largest refining center in Russia is at Baku, where the crude capacity is 223,000 barrels per day. The next important refining center is at Grozny where the plants have a capacity of 128,000 barrels per day. At Batoum, the Black Sea terminal of the pipe line from Baku, there are several plants with a total capacity of 30,000 barrels per day. The majority of these were placed in operation during the first half of 1931. At Tuapse, the seaport terminal of the pipeline from Grozny, there are several plants with a capacity of about 6500 barrels per day. In addition there are several small refineries at Leningrad, Krasnador, Jaroslavia, and the Uzbek Republic in Russian Turkestan. These last mentioned plants are the beginning of a new policy of the Soviets, that is, building new refineries near important points of consumption.

### Roumania

Roumania, although very small in land area, is nevertheless very important in the world petroleum picture. It ranks fourth as a world producer. Most of the production of 142,226 barrels per day is run through the 55 Roumanian refineries which have a total daily crude capacity of 154,750 barrels. Roumania's consumption of only 44,100 barrels a day allows an exportable surplus. This surplus comes into direct competition with the exports from the United States; so much so in fact that early this year prices f.o.b. Constanza were the governing factors in establishing prices in the consuming centers of Europe, instead of the United States Gulf export price.

The present price of crude in Roumania ranges from 17 to 27 cents, and gasoline f.o.b. Constanza 4.2 cents.

In July, 1930, the Roumanian operators signed a proration agreemnt and during the latter half of 1930 it appeared that the last of the crude producing countries with a large flush production, excepting. Russia of course, had recognized the benefits of rationalized production, and that world conservation was near. This reform however, was short-lived. On Dec. 1, 1930, the curtailment agreement was cancelled and the Roumanian flood gates were again opened.

The majority of the Roumanian refineries are in the vicinity of Ploesti. The largest plant, with a daily crude capacity of 26,500 barrels, is at Campina.

### British Isles

The only crude supply on the British Isles, except for a few barrels a week produced from the one small well at Hardstoft, is the shale oil output in Scotland amounting to about 3500 barrels per day, and yet it is the third largest refiner of crude on the European Continent. This is, of course, due to the fact that Great Britain, with a consumption of approximately 163,000 barrels per day, ranks third in importance in the consuming countries of the world, being surpassed only by the United States and Russia.

There are 14 refineries on the British Isles. The largest plant is at Swansea, Wales, capable of turning out a complete line of products. This modern refinery has a rated crude capacity of 40,000 barrels per day, and is run on crude imported from Persia.

Next in importance is the refining center near London. There are three plants located here with a daily capacity of 30,000 barrels.

There are four refineries near Edinburg, Scotland, with a total capacity of 27,500 barrels per day.

The six other refineries are located at Southampton, Manchester, Hull, Rochester, and

# The World Oil Supply and Demand Picture

| | PRESENT | | | 1930 | | | | |
|---|---|---|---|---|---|---|---|---|
| | Daily Crude Production Barrels | Daily Refinery Capacity Barrels | Daily Crude Potential Production Barrels | Area | Population | Motor Vehicle Regis. Dec. 31, 1930 | Daily Avg. Cons. *Crude & Products 1930 | Per Capita Cons. Bbls. a a Year |
| **United States** | **2,150,000** | **4,000,000** | **4,623,300** | **2,973,774** | **122,698,000** | **26,523,779** | **2,555,041** | **7.60** |
| % of World | 59.18 | 69.30 | 66.79 | 5.85 | 6.20 | 74.50 | 61.83 | |
| Mexico | 100,937 | 140,000 | 135,937 | 760,290 | 16,404,000 | 80,801 | 51,493 | 1.15 |
| Canada | 3,547 | 117,700 | 3,547 | 3,542,049 | 9,797,000 | 1,224,166 | 104,345 | 3.89 |
| Others | 52 | 2,500 | 52 | 1,215,221 | 17,923,000 | 104,169 | 61,227 | 1.25 |
| **Balance N. America** | **104,536** | **260,200** | **139,536** | **5,517,560** | **44,124,000** | **1,409,136** | **217,065** | **1.80** |
| % of World | 2.88 | 4.51 | 2.02 | 10.81 | 2.23 | 3.96 | 5.25 | |
| Argentina | 35,271 | 56,770 | 41,271 | 1,079,965 | 11,193,000 | 366,324 | 59,279 | 1.93 |
| Colombia | 48,081 | 7,000 | 88,081 | 497,300 | 8,703,000 | 13,750 | 4,443 | .19 |
| Peru | 32,467 | 17,050 | 82,457 | 524,800 | 6,187,000 | 14,371 | 8,077 | .48 |
| Trinidad | 27,059 | 28,700 | 33,059 | 1,976 | 400,000 | 6,250 | 9,497 | 8.67 |
| Venezuela & D. W. I. | 313,568 | 323,100 | 473,568 | 352,546 | 3,214,000 | 17,002 | 48,913 | 5.55 |
| Others | 5,456 | 1,000 | 8,956 | 4,663,686 | 53,410,000 | 289,368 | 45,575 | .31 |
| **Total South America** | **461,902** | **433,620** | **727,402** | **7,120,273** | **83,107,000** | **707,065** | **175,784** | **.77** |
| % of World | 12.72 | 7.52 | 10.51 | 13.95 | 4.20 | 1.99 | 4.25 | |
| Russia | 463,524 | 400,000 | 463,524 | 2,094,034 | 143,400,000 | 30,910 | 276,077 | .70 |
| Rumania | 142,226 | 154,750 | 202,226 | 113,887 | 18,172,000 | 37,000 | 44,104 | .89 |
| Great Britain | 3,484† | 111,500 | 3,484 | 94,278 | 45,741,000 | 1,524,339 | 163,189 | 1.30 |
| Germany | 3,952 | 33,200 | 3,952 | 180,989 | 64,036,000 | 679,300 | 70,238 | .40 |
| Others | 14,328 | 90,850 | 14,328 | 1,644,056 | 244,041,000 | 2,962,147 | 278,578 | .42 |
| **Total Europe** | **627,514** | **790,300** | **687,514** | **4,127,244** | **515,390,000** | **5,233,696** | **832,186** | **.59** |
| % of World | 17.27 | 13.69 | 9.93 | 8.08 | 26.06 | 14.70 | 20.14 | |
| Persia | 142,068 | 95,000 | 342,068 | 628,000 | 10,000,000 | 3,308 | 17,466 | .64 |
| Iraq | 2,000 | 2,150 | 102,000 | 143,250 | 3,425,000 | 2,544 | 2,923 | .31 |
| India | 23,000 | 24,800 | 23,000 | 1,819,000 | 350,000,000 | 174,450 | 41,573 | .04 |
| Japan | 5,000 | 25,350 | 5,000 | 147,327 | 62,938,000 | 98,369 | 45,726 | .27 |
| Others | 4,133 | 0 | 4,133 | 13,032,655 | 570,850,000 | 167,211 | 91,896 | .06 |
| **Total Asia** | **176,201** | **147,300** | **476,201** | **15,770,232** | **997,213,000** | **445,882** | **199,584** | **.07** |
| % of World | 4.85 | 2.55 | 6.88 | 30.89 | 50.43 | 1.25 | 4.83 | |
| Dutch East Indies | 98,333 | 108,600 | 248,333 | 733,714 | 55,039,000 | 84,783 | 34,239 | .23 |
| Sarawak | 9,316 | 15,000 | 14,316 | 76,106 | 900,000 | 100 | 1,107 | .45 |
| Australia | 0 | 4,350 | 0 | 2,974,581 | 6,414,000 | 567,020 | 30,855 | 1.76 |
| Others | 0 | 0 | 0 | 460,381 | 15,347,000 | 279,651 | 31,240 | .74 |
| **Total Oceania** | **107,649** | **127,950** | **262,649** | **4,244,782** | **77,700,000** | **931,554** | **97,441** | **.46** |
| % of World | 2.96 | 2.22 | 3.79 | 8.31 | 3.93 | 2.62 | 2.36 | |
| **Africa** | **5,275** | **12,400** | **5,275** | **11,300,138** | **137,263,000** | **352,064** | **55,192** | **.15** |
| % of World | .14 | .21 | .08 | 22.13 | 6.95 | .98 | 1.34 | |
| **Total Foreign** | **1,483,077** | **1,771,770** | **2,298,577** | **48,080,229** | **1,854,797,000** | **9,079,397** | **1,577,252** | **.31** |
| % of World | 40.82 | 30.70 | 33.21 | 94.17 | 93.80 | 25.50 | 38.17 | |
| **Total World** | **3,633,077** | **5,771,770** | **6,921,877** | **51,054,003** | **1,977,495,000** | **35,603,176** | **4,132,293** | **.76** |
| Casinghead and Benzol Prod. | 150,000. | | | | | | | |

† Standard Oil. *Includes Bunkers. Capacity Figures in Barrels of 42 Gallons.

Medway, and have a combined rated capacity of 14,000 barrels of crude.

### France

The French Parliament has been struggling for the past three or four years with legislation for what might be termed an alternative to a state monopoly. It is in the form of a license system by governmental regulation. On April 4 of this year the new system was officially inaugurated by the issuance of 11 licenses for importing crude. The decrees did not indicate the amount of crude each company was authorized to import, but the understanding is that crude oil may be imported to manufacture the 21,749,000 barrels of gasoline, kerosine, lubricating, and gas oil, covered by the permits. This new license system, together with recent upward revisions of the French tariff laws, increasing duties on petroleum products, makes it necessary for those companies receiving the licenses to build refineries in order to protect their marketing interests. According to the terms of the decree all the companies receiving import authorization must have refineries in operation by 1934. At the present time there are only three plants in operation with a total daily capacity of 14,500 barrels. In addition to the refineries now in operation there are ten building with a total daily capacity of 80,000 barrels. When these are completed France will have a daily average refining capacity of approximately 94,500 barrels a day.

### Spain

Spain is another of the European countries in which the refining industry is fostered by legislation. Unlike France, however, in Spain the industry is practically under government control. One of the provisions of the royal decree of June 28, 1927, establishing the monopoly was for the development of a refining industry large enough to supply 80 per cent of the domestic requirements in five years. When the government expropriated the properties of private oil companies it found itself in possession of two small plants with a combined capacity of 1150 barrels a day. Since that time a 5000-barrel plant has been completed on one of the Canary Islands. Another with an ultimate capacity of 10,000 barrels a day is now being built near Barcelona, and plans have been drawn for the construction of three more plants on the northern, southern, and eastern coasts of Spain.

### Poland

There are 49 plants in Poland with a daily capacity of 28,000 barrels a day. Only 30 of these were active at the end of 1930.

In the last ten years, due to the depressed condition of the Polish oil industry, a number of the older plants have ben dismantled. There are only three cracking plants in the country, one of which is shut down most of the time.

At the present time Poland has a small exportable surplus, but when this country, with a potentially wealthy market of 30,000,000 people, receives some financial reconstruction this exportable surplus will be consumed locally and the present supply will no doubt be inadequate to meet the demand.

### Asia

Asia, with a production at present of 159,000 barrels daily and a refining capacity of 147,000 barrels is only a little short of meeting the demand for about 200,000 barrels a day.

Asia has about 31 per cent of the land area and 50 per cent of the population of the world.

The largest refinery in Asia is the one at Abadan on the head of the Persian Gulf. It is a modern and complete plant of 95,000 barrels capacity and is supplied with crude from the Masjid-i-Sulaiman and Haft Kel fields of Persia.

The Anglo-Persian Oil Co. is controlled by the British Government and has a blanket concession on all of Persia except the five northern provinces, or an area of 500,000 square miles.

The major areas have been discovered so far. The one at Masjid-i-Sulaiman is now 21 miles long. At the last annual meeting the chairman of the company stated that the other area, the new Haft Kel field,located about 38 mils southeast of Masjid-i-Sulaiman and on the route of the main pipe line from that field, is of equal or greater dimensions. Control of these areas by one company makes it possible to produce the crude most intelligently and is a strong argument for pooling producing properties.

Iraq, the other important area of Asia has only two refineries. The largest one with a capacity of 2000 barrels daily, is located at Khanaquin in the transferred territory on the western boundary of Persia. Crude for this plant is produced in the Naft Khanah field located near the refinery and the products are sold locally.

The other plant is a small topping unit of only 150 barrels daily capacity. It is located at Kirkuk and is used to supply the Iraq Petroleum Co.'s operations in that area.

The pipe lines from the Kirkuk field will be running crude to the Mediterranean sometime in 1934 or 1935. Since Europe will be a natural outlet for this crude, it is expected the flow will practically all be in that direction.

### Japan

Japan, with a consumption of 45,727 barrels per day, is the largest consumer of petroleum products in Asia. Its refinery capacity of 25,350 barrels and production of only 5600 barrels daily falls far short of supplying the demand. In addition to the local crude production the Japanese have a share of the Sakhalin production which has been running about 4500 barrels per day. There are 12 important refineries ranging in size from 200 barrels per day, to 7000 barrels per day. The large refineries are located on the mainland, with two small plants on outlying islands.

Although British India is the next in importance as a consumer of petroleum products in Asia, the population of over 350,000,000 people, nearly three times that of the United States, consumes only .05 barrels of petroleum products per person annually.

India's daily production of 23,000 barrels and refining capacity of 24,800 barrels is not sufficient to supply the demand of about 42,000 barrels. During the past four or five years India has maintained an average of producing approximately 55 per cent of its requirements. Ability to maintain this average is very doubtful because liklihood of discovering new producing areas is declining with the continued failure of drilling.

The bulk of India's production is on the Burmese Peninsula and the largest refineries are in this general area. Of the eight refining plants in the country, three are near Rangoon. The largest is a 16,500 barrel plant, and the next in importance is a 2500-barrel plant also located near Rangoon. The others are small refineries located at Rawalpindi, Dighoi, and Kindat.

### Dutch East Indies

Unless one is interested in the Orient, the size and importance of the Dutch East Indies cannot be appreciated. Ordinarily they are considered to be a small group of islands situated between Australia and southeastern Asia. This great island empire, 12,000 miles from New York, in reality consists of some 5000 islands with a total area of over 800,000 square miles, or larger than all of Mexico.

The Dutch East Indies really is a very important factor in the world's oil picture. Crude is produced on the islands of Sumatra, Borneo, Java and Celebes. Last year the Dutch East Indies and Sarawak, which is located in the British Protectorate on the island of Borneo, produced 126,000 barrels per day and ranked fourth in the producing countries of the world, being surpassed only by the United States, Venezuela, and Russia.

There are ten refineries on the islands of Sumatra, Borneo, Java, and Ceram, with a total crude capacity of 108,600 barrels per day. The largest of

(*Continued on page* 48)

# Refinery Centers Outside the United States

**as of Sept. 1, 1931**

| | No. of Plants | Daily Avg. Crude Cap. |
|---|---|---|
| **Mexico** | | |
| Tampico | 3 | 115,000 |
| Minatitlan | 1 | 25,000 |
| Total | 4 | 140,000 |
| **Canada** | | |
| Montreal | 2 | 39,000 |
| Sarnia | 2 | 23,200 |
| British Columbia | 2 | 18,250 |
| Toronto | 2 | 8,000 |
| Calgary | 2 | 7,500 |
| Regina | 1 | 7,200 |
| Halifax | 1 | 7,000 |
| Coutts | 2 | 6,000 |
| Lethbridge | 2 | 550 |
| Winnipeg | 1 | 500 |
| Edmonton | 1 | 350 |
| Wainwright | 1 | 150 |
| Total | 20 | 117,700 |
| **Building** | | |
| Montreal | 1 | |
| Nova Scotia | 1 | |
| **Cuba** | | |
| Havana | 1 | 2,500 |
| **Venezuela & Dutch West Indies** | | |
| Curacao | 1 | 165,000 |
| Aruba | 2 | 132,000 |
| San Lorenzo | 1 | 17,000 |
| La Salina | 1 | 4,000 |
| Maracaibo | 1 | 2,450 |
| Cabimas | 1 | 1,800 |
| Tarra | 1 | 600 |
| Tocuyo | 1 | 250 |
| Total | 9 | 323,100 |
| **Argentina** | | |
| La Plate | 8 | 40,050 |
| Com. Rivadavia | 3 | 11,500 |
| Bahia Blanca | 2 | 3,700 |
| Pl. Huincul | 1 | 720 |
| Embarcacion | 1 | 500 |
| Lomitas | 1 | 300 |
| Total | 16 | 56,770 |
| **Building** | | |
| Buenos Aires | 1 | |
| **Trinidad** | | |
| Pointe-a-Pierre | 1 | 21,000 |
| Point Fortin | 1 | 5,000 |
| Brighton | 1 | 1,200 |
| La Brea | 1 | 1,000 |
| Tabaquite | 1 | 500 |
| Total | 5 | 28,700 |
| **Peru** | | |
| Talara | 1 | 16,800 |
| Zorritos | 1 | 250 |
| Total | 2 | 17,050 |
| **Colombia** | | |
| Barranca | 1 | 7,000 |
| **Ecuador** | | |
| Guayaquil Peninsula | 3 | 650 |

| | No. of Plants | Daily Avg. Crude Cap. |
|---|---|---|
| **Bolivia** | | |
| Sanandita | 1 | 200 |
| Camiri | 1 | 150 |
| Total | 2 | 350 |
| **Russia** | | |
| Baku | 19 | 223,000 |
| Grosni | 15 | 128,000 |
| Batoum | 5 | 30,000 |
| Tuapse | 1 | 6,500 |
| Yaroslavl | 2 | 5,500 |
| Grasnodav | 1 | 3,000 |
| Varinsk | 1 | 3,000 |
| Leningrad | 1 | 600 |
| Uzbeck Republic (Russian Turkestan) | 2 | 400 |
| Total | 47 | 400,000 |
| **Building** | | |
| Several cracking and topping plants are being built. Accurate details are not available. | | |
| **Rumania*** | | |
| Ploesti | 15 | 98,680 |
| Campina | 1 | 26,500 |
| Baicoi | 1 | 7,000 |
| Bucarest | 3 | 3,800 |
| Targavista | 5 | 3,700 |
| Cernavada | 1 | 3,500 |
| Buzau | 2 | 2,080 |
| R. Sarat | 1 | 2,000 |
| Moinesti | 6 | 1,240 |
| Plopeni | 1 | 1,200 |
| Others | 15 | 5,050 |
| Total | 51 | 154,750 |
| *The majority of Rumanian plants are in the vicinity of Ploesti. Owing to the size of Rumania on the world map the major portion of the refining centers shown above were included in Ploesti. | | |
| **Great Britain** | | |
| Wales (Swansea) | 1 | 40,000 |
| London | 3 | 30,000 |
| Scotland (Edinburgh) | 4 | 27,500 |
| Southampton | 1 | 9,000 |
| Manchester | 1 | 3,000 |
| Hull | 2 | 1,000 |
| Rochester | 1 | 1,000 |
| Medway | 1 | 0 |
| Total | 14 | 111,500 |
| **Germany** | | |
| Harburg | 2 | 14,450 |
| Manheim | 2 | 2,400 |
| Leunawerke | 1 | 4,500 |
| Ostermoor | 1 | 1,300 |
| Bremen | 2 | 1,250 |
| Others | 23 | 9,300 |
| Total | 30 | 33,200 |
| **Building** | 1 | 1,200 |
| **Poland** | | |
| Central | | 13,502 |
| Western | | 12,027 |
| Eastern | | 2,671 |
| Total | 49 | 28,200 |

| | No. of Plants | Daily Avg. Crude Cap. |
|---|---|---|
| **France** | | |
| Rouen | 1 | 7,500 |
| Dunkirk | 1 | 5,000 |
| Strasbourg | 1 | 2,000 |
| Total | 3 | 14,500 |
| **Building** | | |
| Havre | 4 | 47,000 |
| Marseilles* | 1 | 7,000 |
| Dunkirk | 1 | 6,000 |
| Bordeaux† | 1 | 6,000 |
| St. Nazaire | 1 | 6,000 |
| Brest | 1 | 6,000 |
| Frontignan | 1 | 2,000 |
| Total | 10 | 80,000 |
| †1Planned. To start construction shortly. | | |
| *2Planned. To start construction shortly. | | |
| **Austria** | | |
| Vienna | 1 | 12,600 |
| Others | 6 | 1,700 |
| Total | 7 | 14,300 |
| **Czechoslovakia** | | |
| Czechoslovakia | 11 | 9,100 |
| **Hungary** | | |
| Budapest | 4 | 4,950 |
| Others | 3 | 2,050 |
| Total | 7 | 7,000 |
| **Holland** | | |
| Rotterdam | 2 | 5,700 |
| Flushing | 1 | 1,150 |
| Total | 3 | 6,850 |
| **Jugoslavia** | | |
| Bosanki Brod | 1 | 2,300 |
| Others | 3 | 950 |
| Total | 4 | 3,250 |
| **Belgium** | | |
| Belgium | 7 | 1,900 |
| **Italy** | | |
| Trieste | 1 | 1,000 |
| Fiume | 1 | 600 |
| Others | 5* | 300 |
| Total | 7 | 1,900 |
| *Three are cracking plants only. | | |
| **Sweden** | | |
| Nynashamor | 1 | 1,250 |
| **Spain** | | |
| Barcelona | 1 | 700 |
| Bilbao | 1 | 450 |
| Total | 2 | 1,150 |
| Spanish Monopoly building a 10,000 barrel plant at Barcelona and have plans drawn for three more. | | |
| **Norway** | | |
| Vallo | 1 | 1,000 |

| | No. of Plants | Daily Avg. Crude Cap. |
|---|---|---|
| **Latvia** | | |
| Riga | 1 | 300 |
| **Denmark** | | |
| Denmark | 2 | 150 |
| **Persia** | | |
| Abadan | 1 | 95,000 |
| **Japan** | | |
| Niigata | 3 | 7,800 |
| Kanagawa | 2 | 5,000 |
| Tokyo | 2 | 3,750 |
| Yamaguchi | 2 | 3,750 |
| Akita | 1 | 3,300 |
| Hokkaido | 1 | 300 |
| Taiwan | 1 | 200 |
| Others | 2 | 1,250 |
| Total | 14 | 25,350 |
| **India** | | |
| Rangoon | 3 | 21,000 |
| Rawalpindi | 1 | 1,300 |
| Digboi | 1 | 1,000 |
| Komdab | 1 | 1,000 |
| Thilwa | 1 | 500 |
| Total | 7 | 24,800 |
| **Iraq** | | |
| Khanaquin | 1 | 2,000 |
| Kirkuk | 1 | 150 |
| Total | 2 | 2,150 |
| **Egypt** | | |
| Suez | 2 | 7,400 |
| **Canary Islands** | | |
| Santa Cruz de Tenneriffe | 1 | 5,000 |
| **Dutch East Indies** | | |
| **Java** | | |
| Tjepoe | 1 | 14,000 |
| Wonokromo | 1 | 2,000 |
| Kapoean | 1 | 500 |
| Klantoeng | 1 | 100 |
| **Sumatra** | | |
| Pladjoe | 1 | 27,000 |
| Palembang | 1 | 13,000 |
| Pankalan Brandon | 1 | 12,000 |
| Atjeh | 1 | 4,000 |
| **Borneo** | | |
| Balik Papan | 1 | 35,000 |
| **Ceram** | | |
| Boela Bay | 1 | 1,000 |
| Total D. W. I. | 10 | 108,600 |
| **Sarawak** | | |
| Miri | 1 | 15,000 |
| **Australia** | | |
| Clyde | 1 | 2,300 |
| Lanerton | 1 | 2,000 |
| Newport | 1 | 50 |
| Total | 3 | 4,350 |
| **Total Foreign** | 351 | 1,771,770 |
| *Capacity in Barrels of 42 Gallons. | | |

# 123,979 Filling Stations in U. S. Census Bureau Discloses

WASHINGTON, Sept. 19

THERE were 123,979 filling stations in the United States in 1930 according to a count made by the retail distribution section of the U. S. Bureau of the Census. These stations reported total sales of $1,883,842,465 in 1929. The government defined a filling station as a place of business whose principal sales were of petroleum products.

The census enumerators found 55,787 stations selling petroleum products exclusively at retail. These stations sold $930,349,093 worth of goods in 1929.

Filling stations with a sideline of tires and accessories numbered 33,443 in 1930. These stations sold $650,818,939 worth of goods.

There were also 34,749 filling stations with sidelines such as lunch counters, groceries, candy, tobacco, etc. These stations reported total net sales of $302,674,433 in 1929.

These groups of stations of course do not include all of the retail outlets for gasoline, motor oil and other petroleum products. They represent only those retail establishments which reported to the census enumerators that their principal business was in petroleum products.

In the automotive group of retail establishments as a whole there were 253,322 retail outlets, including the filling stations reported above. The total sales of the automotive group were $9,546,897,913 in 1929, of which the 41,158 sellers of motor vehicles sold $6,169,463,534 worth of goods.

Most of the retail stores in the automotive group of course handled gasoline and oil as a sideline. This would be particularly true of the 54,199 service and storage garages reported, the 11,643 tire and accessory stores, the 6971 tire shops and the 3179 used car dealers.

In Washington, D. C., for example, the tire and accessory stores reported that 7.63 per cent of their business was in gasoline and 2.39 per cent in lubricating oils and greases. Garages reported 22.17 per cent of their business was gasoline and 4.5 per cent oil and grease.

Later the Bureau of Census will report in detail on the number of chain filling stations, according to size and location by states. Thus far the general figures released show 1177 chains in the whole automotive field with 31,975 retail stores. Of these there are 862 chain filling stations in the three main groups with 25,553 retail stores. There were only 6422 chain stores in the automotive group outside of filling stations.

## Filling Stations in the United States as Shown by the 1930 Census

| | Gas, Oil and Kerosine | | With Tires and Accessories | | With Lunch Counter and Other Merch. | |
|---|---|---|---|---|---|---|
| | | Net Sales | | Net Sales | | Net Sales |
| | No. | 1929 | No. | 1929 | No. | 1929 |
| Alabama | 824 | 9,339,233 | 491 | 7,990,730 | 443 | 2,579,973 |
| Arizona | 172 | 1,911,915 | 326 | 5,979,135 | 157 | 1,024,890 |
| Arkansas | 825 | 8,091,904 | 756 | 11,700,582 | 439 | 2,554,727 |
| California | 3,340 | 46,683,280 | 3,275 | 64,815,743 | 2,254 | 28,857,305 |
| Colorado | 690 | 10,601,593 | 461 | 8,881,651 | 217 | 2,254,253 |
| Connecticut | 512 | 8,496,124 | 374 | 9,921,495 | 505 | 4,113,805 |
| Delaware | 94 | 1,749,260 | 58 | 1,155,930 | 157 | 1,223,748 |
| District of Columbia | 103 | 2,986,612 | 109 | 5,967,372 | 42 | 2,517,387 |
| Florida | 1,132 | 11,609,958 | 616 | 11,510,001 | 1,148 | 7,767,996 |
| Georgia | 1,116 | 10,568,905 | 547 | 8,908,331 | 967 | 4,449,672 |
| Idaho | 157 | 1,857,820 | 218 | 3,887,336 | 73 | 670,434 |
| Illinois | 4,116 | 84,275,429 | 1,586 | 27,245,937 | 922 | 7,981,629 |
| Indiana | 2,032 | 34,812,230 | 700 | 15,864,692 | 797 | 6,486,973 |
| Iowa | 2,157 | 36,904,471 | 685 | 10,919,841 | 284 | 2,830,849 |
| Kansas | 1,997 | 34,882,248 | 880 | 14,854,676 | 397 | 4,082,209 |
| Kentucky | 894 | 13,162,366 | 249 | 3,539,310 | 165 | 863,237 |
| Louisiana | 864 | 8,423,437 | 552 | 8,028,256 | 446 | 2,145,930 |
| Maine | 189 | 2,597,192 | 191 | 3,940,816 | 277 | 1,704,084 |
| Maryland | 344 | 7,585,669 | 223 | 4,335,280 | 403 | 5,982,586 |
| Massachusetts | 1,108 | 17,025,625 | 776 | 17,620,343 | 1,504 | 12,978,273 |
| Michigan | 3,087 | 72,449,086 | 1,224 | 31,125,832 | 1,107 | 12,263,292 |
| Minnesota | 2,009 | 44,418,994 | 386 | 7,529,367 | 116 | 1,104,253 |
| Mississippi | 653 | 5,130,444 | 548 | 10,285,956 | 370 | 2,134,444 |
| Missouri | 2,670 | 39,628,693 | 1,019 | 15,084,730 | 492 | 3,035,464 |
| Montana | 230 | 5,597,908 | 186 | 4,385,147 | 38 | 247,075 |
| Nebraska | 867 | 17,071,218 | 674 | 14,419,109 | 98 | 1,134,870 |
| Nevada | 46 | 331,021 | 71 | 1,258,511 | 21 | 156,936 |
| New Hampshire | 174 | 1,217,703 | 110 | 2,419,401 | 293 | 1,490,739 |
| New Jersey | 1,314 | 21,964,773 | 881 | 18,266,379 | 1,358 | 20,304,362 |
| New Mexico | 170 | 1,822,105 | 201 | 3,229,441 | 105 | 654,940 |
| New York | 3,243 | 62,248,208 | 2,247 | 54,946,708 | 3,003 | 25,596,133 |
| North Carolina | 662 | 6,855,234 | 444 | 10,673,558 | 2,708 | 18,993,818 |
| North Dakota | 367 | 8,622,020 | 144 | 2,303,986 | 17 | 92,017 |
| Ohio | 4,042 | 87,916,042 | 1,507 | 36,253,084 | 1,718 | 21,024,912 |
| Oklahoma | 2,128 | 25,470,202 | 1,319 | 20,571,571 | 975 | 5,365,404 |
| Oregon | 537 | 5,132,514 | 534 | 8,844,205 | 503 | 3,879,608 |
| Pennsylvania | 2,471 | 49,283,370 | 1,563 | 33,906,969 | 3,039 | 28,071,021 |
| Rhode Island | 229 | 4,353,414 | 151 | 2,545,532 | 205 | 1,897,148 |
| South Carolina | 428 | 2,787,473 | 345 | 6,226,056 | 798 | 4,894,411 |
| South Dakota | 484 | 13,425,216 | 258 | 5,148,035 | 36 | 311,686 |
| Tennessee | 648 | 8,546,988 | 467 | 11,266,779 | 311 | 2,745,289 |
| Texas | 2,976 | 31,481,211 | 3,328 | 49,931,172 | 2,435 | 15,618,630 |
| Utah | 166 | 2,267,204 | 254 | 4,553,354 | 128 | 1,296,742 |
| Vermont | 176 | 1,838,922 | 55 | 1,164,898 | 241 | 1,544,708 |
| Virginia | 431 | 6,065,746 | 470 | 9,804,093 | 1,224 | 9,687,947 |
| Washington | 612 | 5,203,763 | 954 | 16,382,874 | 883 | 6,680,627 |
| West Virginia | 441 | 6,292,944 | 337 | 7,655,348 | 447 | 5,168,890 |
| Wisconsin | 1,761 | 37,441,554 | 606 | 11,781,415 | 436 | 3,716,143 |
| Wyoming | 99 | 1,919,852 | 87 | 1,787,972 | 47 | 492,964 |
| **UNITED STATES** | **55,787** | **930,349,093** | **33,443** | **650,818,939** | **34,749** | **302,674,433** |

# Broad Phases of Increasing Recovery Covered in Doherty Patents

RECENT decision of the Court of Customs and Tax Appeals, sitting in the case which Henry L. Doherty appealed from the Board of Appeals of the Patent Office, reveals that two claims of Mr. Doherty in patenting a method of developing oil fields, rejected by the Patent Office, were allowed by the higher court and two others were rejected.

Little publicity has been given the procuring by Mr. Doherty of patents on what may broadly be termed Unit Development, but this move by the man who has crusaded for compulsory unit development for years is an interesting step in his campaign.

Two patents Nos., 1,787,972 and 1,787,973, were obtained in the name of Henry L. Doherty. The first was applied for July 20, 1925, and the second Aug. 1, 1925. Both were renewed May 20, 1930, and went to issue Jan. 6, 1931. The purpose of each is described in the first paragraph of the No. 1,787,972:

"This invention relates to the development of oil fields and more particularly to a method of extracting the oil from the oil bearing sands in such a manner that the expulsive force of the gas usually found with the oil may be utilized to the best advantage in extracting the oil from the sands and bringing it to the surface."

Then he goes on to say that, "Unless an oil pool is controlled by a single operator, the wells are usually projected into the oil sands in a more or less haphazard manner without any particular regard to the character of the oil sands and the other factors governing oil production, each operator striving to be the first to get producing wells into the oil sands in order to profit by the flush production which usually follows when the wells are first entered into the producing sands. In other words, no particular system of control of the wells is practiced, each well being allowed to flow from the time it is entered in the oil bearing sands.

"Where a single operator has control of an oil pool, the method of oil production is not substantially different from that where more than one operator is entitled to enter the field, the primary difference being that not so many wells will be sunk in the field. However, such wells as are sunk in the field are allowed to flow from the time the oil bearing sands have been reached without regard to other wells which may subsequently be drilled into the same sands.

"As a consequence the percentage of oil recovered from the sands by present methods of oil production falls far short of the percentage which might be recovered if the expulsive force of the gas could be fully utilized."

Throughout his discussion of what the plan embraces, Mr. Doherty emphasizes the prevention of disproportionate use of gas energy by any one well.

Patents are drawn up something after the manner of the old childhood poem, "The House that Jack Built," in that each paragraph repeats all that was said in the preceding ones and adds a little more to it. The last three claims made by Mr. Doherty summarize his plan:

"A METHOD of developing an oil field comprising projecting a plurality of wells into an oil sand, maintaining such back pressure on each of the wells that a substantially uniform production ratio between oil and gas is maintained at all of the wells, restoring to the field the natural gas flowing from the wells, shutting in any well which produces an excess quantity of gas, finally shutting in all the wells, increasing the pressure over the entire field by pumping into the same a gaseous fluid under pressure, and again opening all of the wells simultaneously.

" . . . allowing the wells to flow until more gas is flowing than would ordinarily flow if only that gas which is dissolved in the oil constitute the expulsive force, shutting in the wells, increasing the gas pressure in the field sufficiently to redissolve the natural gas in the oil in the oil sand, and thereafter opening the wells simultaneously to the further flow of oil and gas.

"A method of developing a new oil field comprising projecting a plurality of wells into an oil sand in spaced relation throughout substantially the entire oil sand area, preventing flow of oil from any of the wells until all of the wells are ready for production, and opening all of the wells simultaneously to the flow of oil and gas."

THE foregoing is taken from the patent with the lower number. The second introduces modifications of the general plan. Mr. Doherty sets out his ideas on such variations as follows:

"According to my method, the field will be developed in a gradual manner. Plans will, however, be made for projecting wells over the entire oil area. . . . After a well has been drilled to completion, it will ordinarily not be allowed to flow freely because of the excessive quantity of gas which would flow compared with the oil produced. Oil under pressure contains a comparatively large volume of dissolved gas. When the pressure is released, as by opening a well, the gas will come out of solution and in coming out of solution will tend to carry the oil

through the sand toward the point of low presure. However, as gas will travel faster than oil through any given sand or formation it is necessary to slow down the movement of the gas and this is accomplished by maintaining a back pressure on the wells.

"The ideal production ratio of gas to oil is such that the volume of gas produced per barrel of oil would be equivalent to the gas dissolved in the oil under naturally occurring conditions. By keeping a controlled back-pressure on the well this ideal condition can be approximated more or less closely.

"In time, however, the oil in the immediate vicinity of the well will be drained more or less completely from the sand and the gas will migrate comparatively long distances without carrying much oil with it, the well will therefore produce an excessive amount of gas. When this condition occurs, the well is shut-in and another well in the immediate vicinity is opened and operated under a controlled back-pressure.

"When the second well is opened it will ordinarily be found advisable to operate it under a reduced back-pressure as compared with the first well; first, because there may have been some drop in pressure following the opening of the first well and, second, because there will probably not be so much free gas in the vicinity of the second well as there was at the first, much of the free gas having found its way into the region of the first well. However, this free gas in the vicinity of the first well is still capable of doing useful work inasmuch as it is still under pressure and when the second well is opened such gas will tend to flow toward the new region of low pressure.

"In the sands between the two wells will be a body of oil and in the region of the first well will be a body of free gas. This gas is, therefore, so to speak, behind the oil body with respect to the second well and in its efforts to move toward the second well will tend to push the oil body toward the second well. Also, since some of the free gas in the sands has moved into the region of the first well there will be less free gas in the vicinity of the second well than there was originally. Consequently, when the second well is opened, there will be less free gas ready to pass out through the well with the result that the ratio of oil to gas will approximate more or less closely the ideal ratio.

"Eventually, however, the free gas from the first well and from the sands surrounding the second well will reach the second well which will as a consequence begin to produce an excessive amount of gas. When this condition occurs it is generally best to again open the first well in order to permit the free gas now in the vicinity of the second well to force the oil back through the sands toward the first well.

"By alternating the flow of oil and gas between the two wells under suitably regulated back-pressure, an unusually complete drainage of the oil from the sand may be obtained. When the first well again begins to produce an excessive amount of gas, it is closed and a third well opened and the process continued as before. After the third well begins to produce an excessive amount of gas it is closed in and the procedure then carried on as before in connection with the first and second wells until the entire field has been covered."

Mr. Doherty, under this patent, also covers the operation of a field by alternately opening and closing rows or groups of wells, as conditions dictate.

In the appeal to the Court of Customs and Tax Appeals, still a third patent was involved. In it the method was described of drilling water wells below the oil body, i. e., at the edge of the field, permitting two forces to operate to deplete the sand of its oil-gas at the top of the structure and water at the edges.

That court held that while water flooding has been practiced for many years, it was always in depleted fields and that the idea of applying water pressure below the oil body before the natural gas pressure is depleted or exhausted was novel and constituted invention.

## Refineries Outside U. S.

(*Continued from page* 44)

these is a 35,000-barrel outfit at Balik Papan on the Island of Borneo. The largest refining center is the one at Palembang. Two plants are located in this general area, and together have a total daily crude capacity of 40,000 barrels.

With a little more of the world's population than the United States and almost four times the land area, Africa possesses less than 1 per cent of the world's automobiles.

The per capita consumption of about seven gallons of petroleum products per person is hardly conceivable. Africa's crude supply is almost negligible. Outside of the production in Egypt amounting to about 5300 barrels per day, and a very small amount produced in Algeria, there is no other supply.

The two refineries on the mainland are in Egypt, and have a total crude capacity of 12,400 barrels per day. The only other plant listed for Africa is the one on one of the Canary Islands off the coast of Africa, and has a daily capacity of 5000 barrels.

The statistics given certainly indicate a decided trend toward lessened movement of both crude oil and products from the U. S. to foreign markets. The dislocation of foreign trade balances has led some nations to encourage the establishment of their own refinery operations through the imposition of tariff barriers. Such artificial stimulants offset, perhaps, the greater ability or other advantages of exporters who have carried the business to its present state.

Against this somewhat gloomy estimate it should be set out that a large part of the world is still woefully behind in its per capita consumption of petroleum products. If other nations used a small part of the per capita consumption of the United States there would not be enough oil today to meet the demand. Therefore, I think it reasonable to expect that as the standard of living rises the world over there will grow with it such an increase in demand as to make the new competition of foreign fields and foreign refineries welcome rather than a menace.

A Greek Orthodox church that has survived the Soviet regime

# Experiences of an American Engineer in Russia

By George A. Burrell*

## Part 8

THE Christian religion travels a hard road today in Russia. Worship proceeds under difficulties and the children are being taught atheism, or what is called the Communistic religion; a very material one. Persecution occurs and intolerance exists. The Russian church worked hand-in-glove with the state, was partly supported by it, and the Czar was its leader. It is said that in espionage it was a tool of the state; sometimes through the confessional, and that it was as reactionary as the state itself. In a huddle of pitiful village houses the church reared up as the only pretentious edifice in the group and the priest was the most important personage. Religion dominated the life of the nation. It was intolerant of creeds other than the Greek Orthodox one; witness the Jewish pogroms.

Services in Russian churches were, and still are beautiful and reverent, but impartial observers say that social justice and social vision were lacking, that superstition and ignorance were fostered, and that ceremony, not preaching, was a characteristic of the church. It was a system that could permit an evil Rasputin to dominate the Czar and his consort, and exercise malign influence over leading court and government officials.

It was not difficult to wean many of the peasants away from the church under vigorous onslaught by the Communists, for they were never spiritually religious, in the main. Most of their superstitions were disclosed to them, and it pleased many of them that no more gifts had to be tendered the church.

The church could not help but be the enemy of the Communistic government and the latter determined to crush it. But worship still goes on. Many churches have been destroyed and their valuables confiscated, or converted to other uses; schools, clubs, and the like, but probably one-half of them or more still persist, and on Sundays they are partly filled with worshippers, mainly adult people.

While we were in Russia there came a vigorous outcry from the foreign press against religious persecution in Russia. Subsequently the Soviet government relieved the pressure against the church to a considerable extent, although I am sure that they would disdain any subservience to the protests. I assumed, whether rightly or not I do not know, that the state, finding itself en-

*Burrell-Mase Engineering Co., Pittsburgh, Pa.

**RUSSIA will set the world price of wheat as it sells the surplus from its collective farms to obtain money for its industrial expansion, Colonel Burrell points out in Article 9 of this series which will appear next week. This article will tell in detail of the progress in collectivization, methods employed to force it and results to date.**

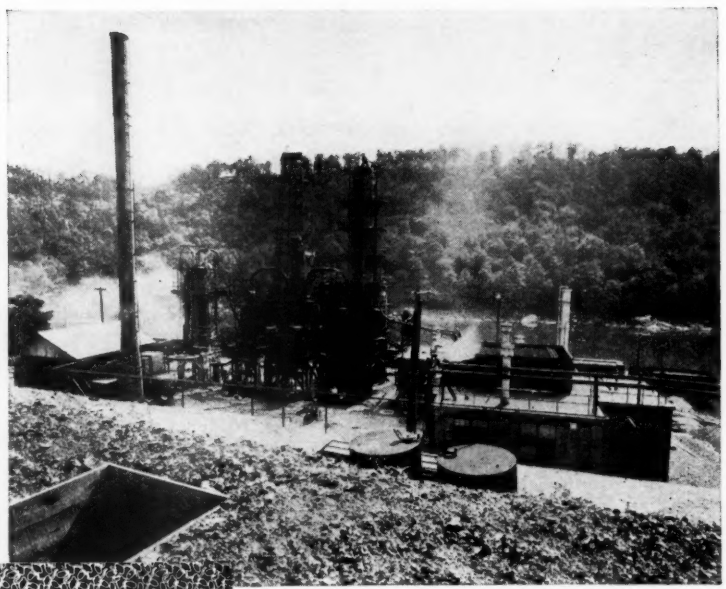
# A New World's Record

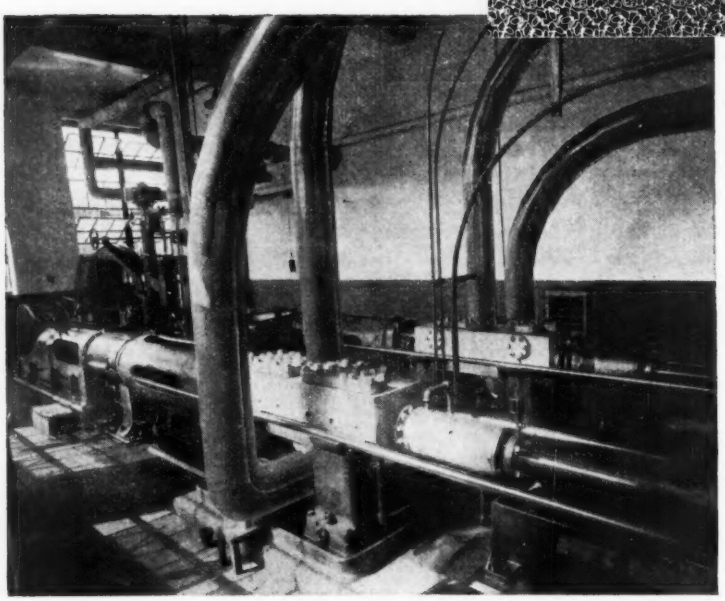
## The PROCESS

A DUBBS Cracking Unit, licensed and installed by the Universal Oil Products Company, at the plant of the Emlenton Refining Company, Emlenton, Pennsylvania, has set a world's record for continuous operation for a Dubbs Unit. The time was 65 days, 22½ hours. The run started at 6:00 P M., May 15 and was shut down at 4:30 P M., July 20 for inspection.

The longest run made previously by a Dubbs Unit was in Italy— 64 days.

Operation during this latest run was entirely normal. Conditions were not doctored to make record breaking possible The unit produced during the entire run better than the expected yield of high antiknock gasoline





## The PUMP

NATURALLY, we are quite proud of the part that TRANSIT PUMPS played in making this record run.

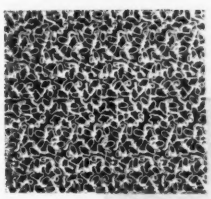
Again and again we have featured absolute dependability as the important factor of TRANSIT Hot Oil Pumps, and we are pleased to have this substantiated again and again by actual performance.

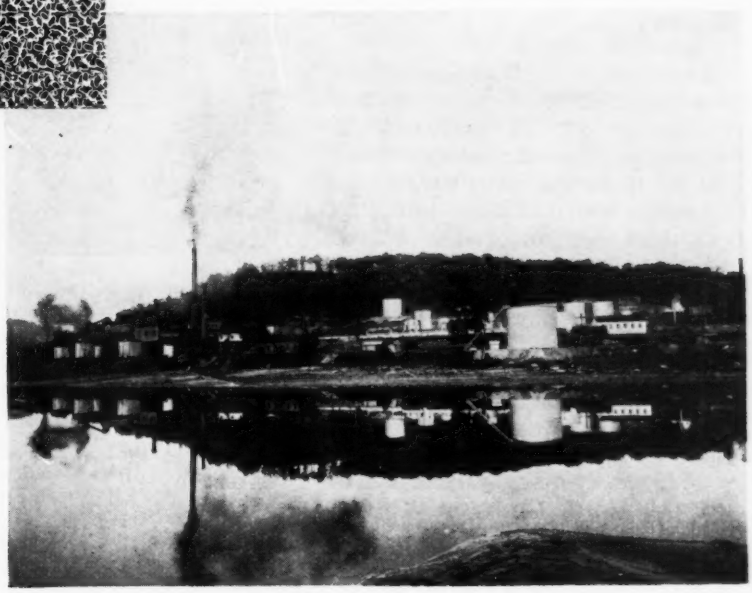
The pump that helped to make this record possible is shown at the left. It is a TRANSIT 12 x 3 x 18" Twin, Rider Type, Crank and Flywheel, Outside End Packed Hot Oil Pump with forged steel fluid cylinders.

Other than this there is very little to describe, because simplicity is one of its outstanding characteristics.

# *in* REFINING

## The PLANT





THE Emlenton Refining Company is a subsidiary of the Quaker State Oil Refining Corporation. This Company has been successful over an operating period of more than thirty-five years. They are refiners of strictly 100% Pennsylvania Grade Crude Oil and hold a position in the industry second to none.

Their plant is equipped with the most modern refining appliances known to the industry. Officials of the Emlenton Refining Company are well pleased with their Dubbs unit installation and say it is giving excellent results in producing gasoline of high octane value.

Their plant at Emlenton is conceded to be one of the most modern in the industry.

WE can't see it in any other way but that the making of this record marks a very distinct advance in refining.

TRANSIT PUMPS are used exclusively in the operation of this unit—a reflux pump, a charging pump, a residuum pump, a clean-out pump, a fuel oil pump and an absorption column pump.

The engineers of Universal Oil Products Company, working with our engineers decided on the particular size and type of TRANSIT Hot Oil Pump used. That their selection was wise has been proved.

The selection of the proper hot oil pump for an installation is an engineering proposition. TRANSIT has the engineering talent to give you the best of service along this line No obligation, of course, expressed or even implied.


REFINERY PUMPS FOR HOT OIL and every other refinery service

TRANSIT (CURTIS) ROTARY PUMPS

PIPE LINE PUMPS

BEAUMONT, TEXAS
E. L. Wilson Hardware Company

SALT LAKE CITY, UTAH
F. C. Richmond Machinery Co.

NATIONAL TRANSIT PUMP & MACHINE CO.
OIL CITY, PA.

PHOENIX, ARIZ.
Pratt-Gilbert Co.

LOS ANGELES
Republic Supply Company of California

ST. LOUIS, MO.
Reeves & Skinner Machinery Co.

NEW YORK PHILADELPHIA CLEVELAND PITTSBURGH LOS ANGELES HOUSTON TULSA NEW ORLEANS

FIELD PUMPS
TOOLS
for Pipe Line Construction

GAS ENGINES
GAS ENGINE GAS COMPRESSORS

gaged in a huge international trade with foreign countries, did not care to antagonize them too much on religious matters.

But there are still untold numbers of Russians who desire their church. It could scarcely be otherwise for through the centuries it has been an integral part of their lives. However, it seems to me that they are engaged in a losing fight. They must support the church themselves and cannot engage in any of the usual by-practices, such as weekly meetings, and must not be prophetic or reach the students, or other youths, and must not be actively religious.

Petitions are frequently circulated in a parish to secure signatures of the majority to suppress a certain church. These petitions carry the weight of the state behind them, and just because the necessary signatures are obtained it does not follow that the real approval of a majority is secured. In Grozny I recall that two churches were closed or diverted to other uses. At least three still persist, including a Mohammedan one for the Chechens.

The youth are taught atheism as part of their daily diet; thus they are against religion. Sooner or later present adult worshippers will die off. Hence an effective plan is used to stamp out the church. The children come much more under the influence of the state than of their parents and those of the latter who resent the Soviet policy, and undoubtedly some of them fiercely do, have but little influence in molding the lives of their offspring. Furthermore, the state can strike hard if the parents present much opposition.

I well remember an Easter service we attended in Grozny. Easter is the big religious day and follows an abstinence period; a Lenten session. Service began at midnight and lasted until about 5 o'clock in the morning. The church was packed. We were asked to come to the altar beside the priests as they went through the ceremony. Part of the time they mingled with the congregation or went into the church yard in conducting the rites. All through the long hours of the service the people stood on their

A Russian Greek Orthodox priest

feet. Much of it was devoted to a chant by the head priest and an answering one from the congregation. In defiance of their persecutors they would sing back to the priest, over and over again, the phrase:

"Christ has arisen, yea verily he has arisen."

As we came out of the church and walked through the streets on our way home we noticed an anti-Christ moving picture that was being thrown on the walls of a building near the church.

Rites are performed at the cemeteries the week following Easter. Here the people repair and cover the graves of their dead ones with food. Then the priest comes around and blesses it and after that it is distributed to the poorer class of people who throng the place anticipating a feast. Mrs. Burrell was an interested observer of the ceremonies one day, and found herself surrounded by crowds of curious and friendly people all the time she was there. Early the next morning a delegation of Russian women knocked at our door, who said they represented many women of the town, who wished to express their gratitude for her presence at the cemetery. They said that this indicated that Mrs. Burrell believed in God and was one of them.

As a substitute for the Christian religion the Communists offer and teach their creed. This is a universe without a God and man is without a soul. Also a system where everybody works and nobody enjoys leisure at the expense of others. They believe in class hate and destructive revolutions to overthrow other governments, and government by coercion as long as that is necessary. On the other hand they have things in common with the aims of Christianity. These include social justice, faith in the common man, equal brotherhood and cooperation. They disseminate their views on a world wide scale the same as Christianity does, and are intolerant of other religions the same as the Christian church has been through the centuries. Both the Communists and the Christians have been persecuted in the past.

I have often heard it said that Russia, as no other nation, can persist without the Christian religion or its equivalent; something other than the materialism of the Communists. This sounds reasonable, based upon history up to the present time, but some people will not accept such a prophecy based upon past experience; certainly the Communists do not.

Morals and religion are closely connected. At least what the church condones has a decided influence upon morality in this and other countries. Many people believe that with the church influence swept away in the states there would be a decided change in people's behavior. Hence most Americans cannot help but feel the same way about Russia. But I did not find the licentiousness that some reports have indicated.

The story in the American press of some years ago about the nationalization of women, had no basis in fact. Such a move would create as much of a riot in Russia as here. Following the war and revolution there was such a period of license and unrestraint that it made Lenin frantic but the government has matters pretty well in hand now so that this has long been checked. But shocking were the stories that

ADVERTISING PAGES REMOVED

filtered to the outside world as a consequence.

MARRIAGE and divorce are easy in Russia. Papers are signed in the presence of a Soviet official, and the wedding is sanctioned. If one wants a divorce notice is filed by either party, and same is granted regardless of what the other person says. But the children have to be provided for, and so much of a parent's income may go for the support of the offspring that an effective bar is raised against too many matrimonial ventures.

I was told that divorce is more prevalent in Russia than in America, but I do not know how accurate this information is. The ratio is said to be one divorce to four marriages against one to six in the United States. I am sure that two people can live together, or go off on a trip together, without wedlock, without exciting as much comment as would occur in the States. They will not suffer interference by the state, but in the case of party members or Komsomols, they would be rebuked.

Monogamy is preached, each party to a marriage retains his or her property, the woman need not change her name if she does not want to do so, each one must affirm that he or she is in good health, the marriage age is 18 years, and marriage for sex gratification, followed by divorce, is punishable by law. A civil marriage ceremony can be followed by a church one if a couple desires.

The new marriage code was promulgated in 1929, displacing one that was held not satisfactory. The former was widely discussed all over Russia before it was adopted, and is said to represent the consensus of opinion culled from countless meetings, discussions and debates.

Bathing in the nude is practiced at the beaches, and the rivers, of the big cities. But such sophistication has scarcely penetrated the hinterland, such as Grozny. It would shock most of the inhabitants of this town, I should say, almost as much as it would those of an American town. However, nude cults are not unknown in other sections of Europe. There are large ones in the suburbs of Berlin and Paris. I recall a story told by Wm. White, an American correspondent in Moscow. An American tourist strolled down to the river in Moscow and noticed a high board fence with some cracks in it separating two beaches, one for nude males and the other for nude females. He saw a little boy patrolling the fence and asked him what he was doing. The boy replied that he was replacing his father for a short time, and that the latter fined anybody who peeped through the cracks. The tourist asked if many fines were collected. The boy replied no, only from American tourists.

Liquor is fairly plentiful in Russia, but is high priced. It is handled at the grocery stores in bottles like other commodities. Beer and sometimes vodka can be secured by the glass at the parks, race courses and street counters; little cubby holes of private stores where candy, matches, sometimes cigarettes, mineral water, etc. are dispensed. When we first arrived in Russia I thought that the wines were fairly good. Later we concluded, that except for champagne it had deteriorated in quality. Champagne cost ten to 15 roubles a bottle; hence not much was purchased by the natives. Vodka is the national drink. That which we secured was not considered good by the foreigners; just a poor but high powered whiskey, frequently made from potatoes. Our section, the Caucusus, is a great grape growing region and much wine is made. Most of the peasants make it at home. Before and during a national holiday the sale of liquor is stopped.

We sometimes saw intoxicated men, but they were seldom, if ever, disorderly. Usually they became loquacious, and were not molested by the police. Americans sometimes became intoxicated, so that drinking was generally considered to be one of our failings. Of course everything the Americans did quickly became the knowledge of the town, while much went on among the Russians that we knew nothing about.

It will be recalled that during the war the Czar banished liquor but was compelled to reinstate it.

A characteristic of the adult Russian of the educated class is his courtesy and gentilty. Children are growing up lacking these attributes, at least to the same extent. But they possess other qualities that show the imprint of their teachings. The code of the Young Pioneers, the junior Communistic organization, is against drink, and smoking also. One of their rules is:

"The Pioneer watches out for his health and cleanliness, and neither smokes, nor drinks, nor swears."

I believe that this admonition is being observed, and accordingly that the drink question is in a fair way of being solved.

There are loose women in Russia the same as in all countries, but one is not accosted by them. This is a common happening in Berlin, say. But girls consummate liasons with Americans and other foreigners. Such a union is easily attained. Street girls are watched by the authorities and an endeavor made to make them work. Placards are found in different public places discussing the bad effects of social diseases, and of liquor, thriftlessness, indolence, etc.

IN GENERAL the youth impress one as being self disciplined. Laxity in their sex life is condemned. This is a different situation, I was told, than prevailed five years ago. There is no hint of sex on the stage or the cinema. Sex scandals do not appear in the public press. The few night clubs in Moscow mainly cater to foreigners, but even so are not well attended.

There is no question but what the entire sex question is treated openly and frankly by the young people, and as something that does not have to be hidden; or regarded with curiosityand a sense of sin. But I do not think that it has been proven that this new attitude and liberty has led to less promiscuity or a higher form of love life. This is something yet to be demonstrated, I believe. In fact I think that most Americans would say that it decidedly has not been demonstrated.

Illegitimate children are of legitimate status and parents must provide for them. A wo-

man but has to name the man involved. Abortions are legal up to two months, but are performed without anesthesia in case of unwed mothers to discourage too frequent operations. Furthermore, knowledge of danger to health is disseminated. Knowledge of contraceptive devices is circulated. In fact at some marriage offices, perhaps most of them pamphlets on contraceptives are distributed to newly wedded couples.

Women have the same standing in Russia as men. They are equal in every respect. I have seen them digging ditches, laying brick, making repairs on the railroad, working as drivers or conductors on street cars and busses, or as engineers, chemists, doctors and judges; in fact engaging in every activity that men pursue. The Soviet Ambassadress to Sweden is a woman. Many are on the all Soviet Congress. Particularly do girls want to be engineers and chemists, or follow other technical pursuits. Many of the chemists in the huge research institute of Grozneft are girls, and they, as well as girl engineers, have worked for me on my problems.

There is such a great need in Russia for technologists that both boys and girls in large numbers are attending the engineering schools. In the elementary schools where simple shop practice is given, I have seen girls working away at the benches the same as the boys.

Frequently the children, both boys and girls, are formed in shock brigades and sent to the factories or fields to hasten some backward section of the five-year plant. This year in Grozny they could not receive their diplomas at one of the schools until they had performed a certain amount of the harvesting work in the fields.

It is probable that this shock brigade work is seldom compulsory. Rather it is done on the initiative of the children themselves, or prompted at the suggestion of one of their teachers or elders, so enthused are many of the youth with the possibilities of their new society and the five-year plan. It is possible, of course, that some of the youngsters are not eager to perform hard and time-consuming shock brigade work, but must fall in line with what the majority says, or at any rate with what the more enthusiastic and energetic of the children propose.

The youth movement is of first importance in Russia. Upon it depend the hopes of the party. Several times have I had elder "party" men tell me their future counts but little, and that their sacrifices are of importance only as conditions are bettered for future generations. But a good many older Russians want things as quickly as they can be attained.

Children of all ages are divided into their particular groups; groups that are preparing themselves for entrance into the "party." The youngest, 8 to 11 years of age, are called the Young Octoberists. Then come the Pioneers, 10 to 16 years old, and next the Komsomals, 14 to 23 years. At 18 years of age a youth can enter the "Party" if acceptable. Periodically the groups are cleansed of children who do not fulfill the demands of the organizations, like the "party" in this respect.

Newspapers and pamphlets are published by the Pioneers and Komsomals. The children are unceasingly taught Communism and all of the school libraries are filled with Marx's and Lenin's works. They constantly engage in sports and soccer football, volley ball, outdoor and indoor basketball, field games, bicycle races, and the like are daily diversions. Many times have I stood and watched them at their sports, in parades, going to school, and in school. Never have I seen such enthusiasm for a cause and the eagerness and seriousness with which they go about their work. The children are sure of themselves and contemptuous of things contrary to their creed. They are the happy groups of Russia. One can easily imagine that it will be a calamitous blow to them if their hopes do not materialize.

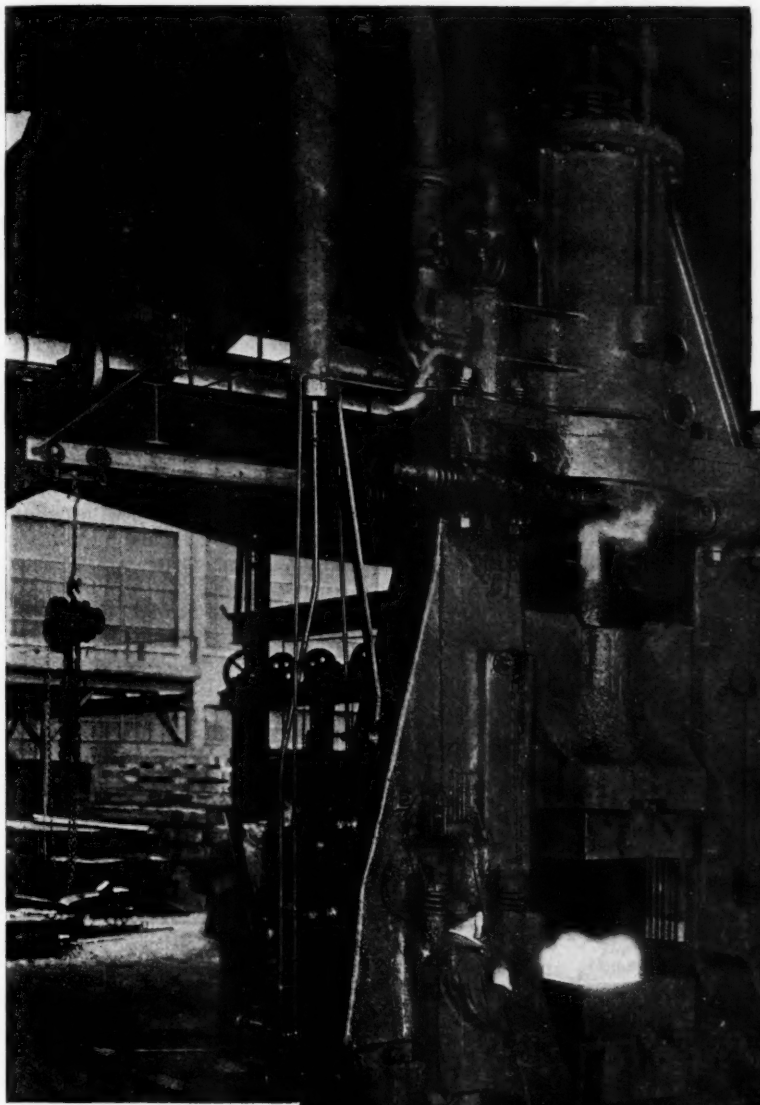
Children spend much of their time in school, at lectures, in conferences, at their games, in the club houses, in the theatres and movies, working as shock brigades, going on excursions to museums and factories, and much less time at home than formerly. Thus they come less under the influence of the home. They are taught to sink their individual desires and work for the welfare of all workers of the world. Literacy, fresh air, sanitation, and health, are subjects constantly kept before them. They hold serious debates about the conduct of delinquents and expel some of the latter from their organizations.

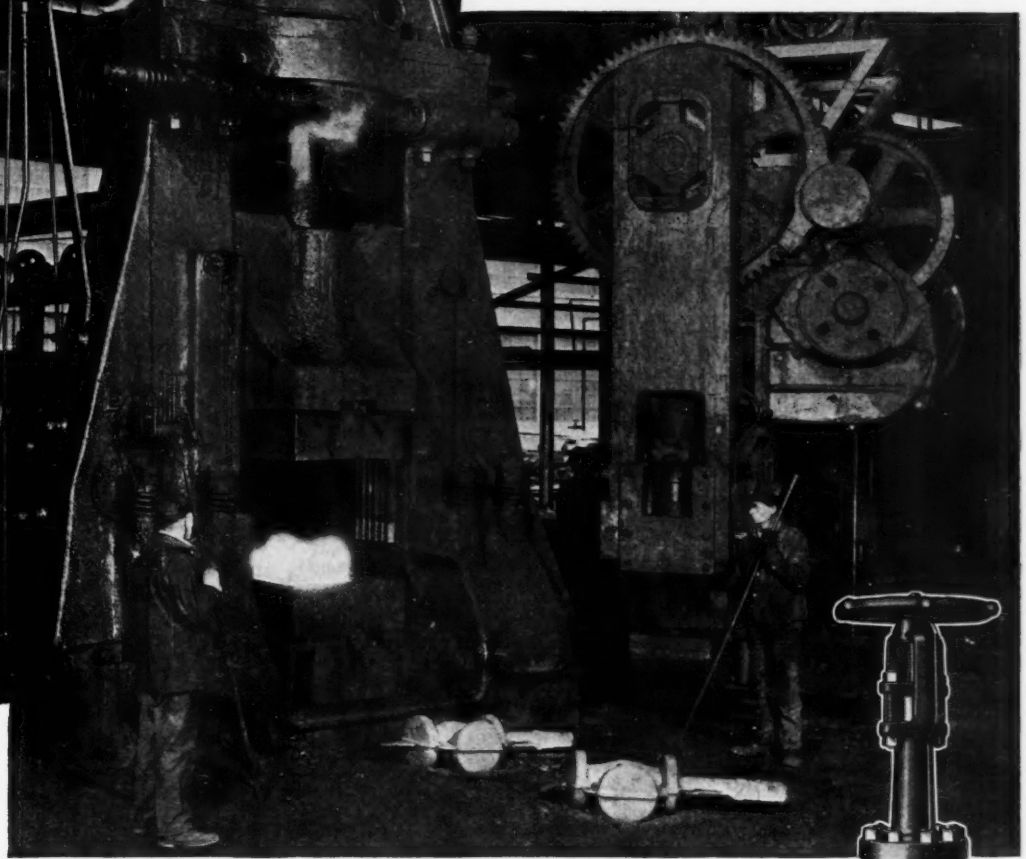
*(To be Continued)*

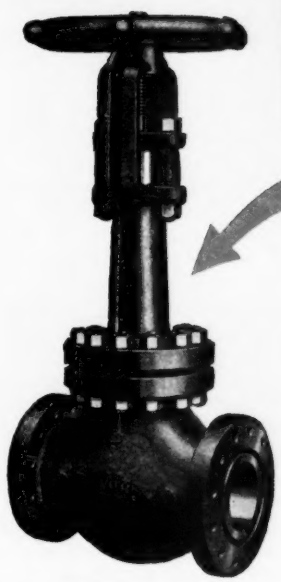
**Fred T. Manley, vice-president of the Texas Co., and Mrs. Manley at a Connecticut seashore "playground," where Mr. Manley was convalescing recently from an illness**

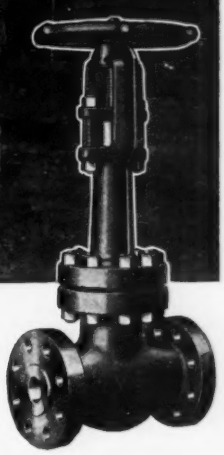
# Vogt

## Drop Forged Integral Flanged VALVES









**6"-600 Lbs. at 900°F.**

**4"-1350 Lbs. at 900°F.**

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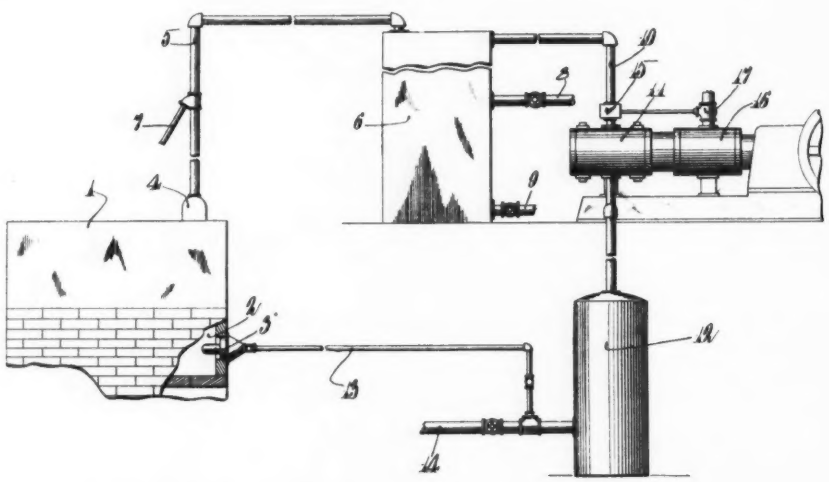
# New Refining Patents

**Controlling Excess Gas. U. S. P. 1 814 000, July 14, 1931, application filed Feb. 25, 1924; David H. Hunter, assignor to Sullivan Machinery Co.**

THE principal obstacle to successful operation of the Fleming high pressure cracking process is the difficulty of disposing of the excess gas, which is extremely obnoxious if allowed to escape into the atmosphere. No satisfactory method has hitherto been found for harmless disposal of this gas.



In the process of this invention, a still 1 has a combustion chamber 2 and burner 3, and at its top a blow-off valve 4 with pipe 5 leading to a gas holder 6. The vapors are condensed by a current of water which is blown in from a pipe 7 and mixed with the hydrocarbon condensate. The gasoline is drawn off at outlet 8, and the water at outlet 9. The remaining combustible gas, containing the obnoxious gases above mentioned, is withdrawn through pipe 10 leading to the intake valves of a compressor 11, which discharges the gas into a receiver 12, from which it may be passed to burner 3 for fuel, passing through pipe 13, or it may be led to city gas mains 14. Fluctuations in rate of evolution on the obnoxious gas are cared for by a vacuum regulator 15 in pipe 10; when the vacuum tends to go too low, the regulator 15 actuates valve 17 to shut down the supply of actuating fluid to a suitable compressor 16.

Thus the new system not only prevents escape of the obnoxious gas, but utilizes it as a fuel gas, so that a double advantage is derived from the process, and the Fleming cracking method is made available for profitable and safe operation.

**What is Claimed**

In a pressure oil cracking still having means for escape of gas and vapor when excess pressure develops, condensing means receiving all of the escaping gas and vapor, a separator to receive them from the condenser, and means for disposing of all the separated gas, including a compressor, a supply conduit connected to its outlet, and means connected to the supply conduit for utilizing all the gas supplied thereto, the compressor having a controller to adjust the compressor operation for handling widely varying quantities of gas.

**Dewaxing Lubricants. U. S. P. 1 809 777, June 9, 1931, application filed Jan. 11, 1930; Lazar Edeleanu, assignor to Edeleanu Gesellschaft m. b. H.**

IT HAS been discovered that liquid sulfur dioxide greatly decreases the solubility of the wax components in lubricating oils. This fact is therefore utilized as a means of facilitating the removal of wax from such oils, in a process which is particularly suitable for use in connection with the Edeleanu refining process but which can also be applied to the dewaxing oils quite separately from the Edeleanu process.

The process comprises saturating the oil with liquid sulfur dioxide, chilling to —15 or even to —25° C, and separating the precipitated wax mechanically (by filtering, centrifuging or electrical precipitation). Examples are cited for application of the invention both in connection with the Edeleanu process, and independently thereof.

**What is Claimed**

Dewaxing mineral oil by adding liquid sulfur dioxide to a fraction already saturated therewith at the existing temperature and pressure to render the wax less soluble, followed by extreme chilling to precipitate the wax, and removing the wax mechanically.

* * *

**Catalytic Cracking. U. S. P. 1 812 398, June 30, 1931, application filed Dec. 19, 1928 and in Germany Feb. 4, 1928; Ernst Galle and Hermann Zorn, assignors to I. G. Farbenindustrie Aktiengesellschaft.**

USE of phosphoric acid as a catalyst of the cracking of heavy oil is known; but it has now been found that metaphosphates, particularly those of metals of Group VI of the periodic table, are more active catalysts. The active salts may be deposited on pumice, silica gel or other carrier; and the oil vapor to be cracked may be diluted with an inert gas such as nitrogen or carbon dioxide. For most cases the temperature of treatment should be within the range 400-800°C. Pressure, say up to 50 atm., may be applied. The use of metaphosphate catalysts is also applicable to liquid phase cracking.

As an example, chromium metaphosphate was used at 580° C. to crack vapor of crude petroleum, of which 100 parts yielded 40 parts boiling below 200°C., and 18 parts of gas of which about one third was made up of olefines. The residue was a coke-free oil. In another example, uranyl metaphosphate is cited as the catalyst.

**What is Claimed**

In thermal cracking of heavy oils, affecting the treatment in presence of a catalyst comprising a metaphosphate at a temperature which promotes the conversion.

* * *

**Decomposing Hydrocarbons. U. S. P. 1 814 621, July 14, 1931, application filed April 20, 1926; Richard J. Dearborn and George W. Gray, assignors to The Texas Co.**

THIS invention provides a method for cracking, decomposing and partially oxidizing heavy oils, tars, pitches and the like, in liquid phase or in suspension in a liquid. The reactions are effected with the aid of heat and pressure, in presence of an oxidizing gas such as air, but only enough of such gas for partial oxidation. The treatment may be regulated to produce as a main product a gasoline of high volatility, or it may be used for production of oxygenated derivatives of hydrocarbons, e. g. alcohols, aldehydes, ketones, fatty acids and phenoloids.

A major feature of the process is slow oxidation, generating heat which may be utilized as desired for maintenance of the required decomposition temperatures. Thus the process may be continuous, fresh liquid being added to the reaction chamber to maintain the level, and air being supplied at the rate required by the desired reaction conditions.

The losses due to formation of fixed gas, incurred in the usual pyrolytic cracking processes, are largely or en-

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If we were getting every possible drop of gasoline out of every barrel of crude we run, the army wouldn't have been called out to shut in the wells

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Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
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tirely avoided in this process. Economies and advantages of pyrolytic cracking and of the slow partial combustion method of cracking are combined and valuable chemicals may be obtained as desired.

### What is Claimed

Decomposing liquid hydrocarbons by passage into the first of a series of interconnected heat insulated vessels to form a body of liquid in each vessel, maintaining the contents of the vessels under pressure above 300°F., introducing an oxygen containing gas in the bottom of each vessel for exothermic reaction but only in such limited quantity as to prevent formation of fixed gas, removing the generated vapors and condensing therefrom the less volatile constituents, separately heating the condensate to supply sufficient additional heat to promote active decomposition of the charge, and continuously introducing the heated condensate into the first vessel for further treatment.

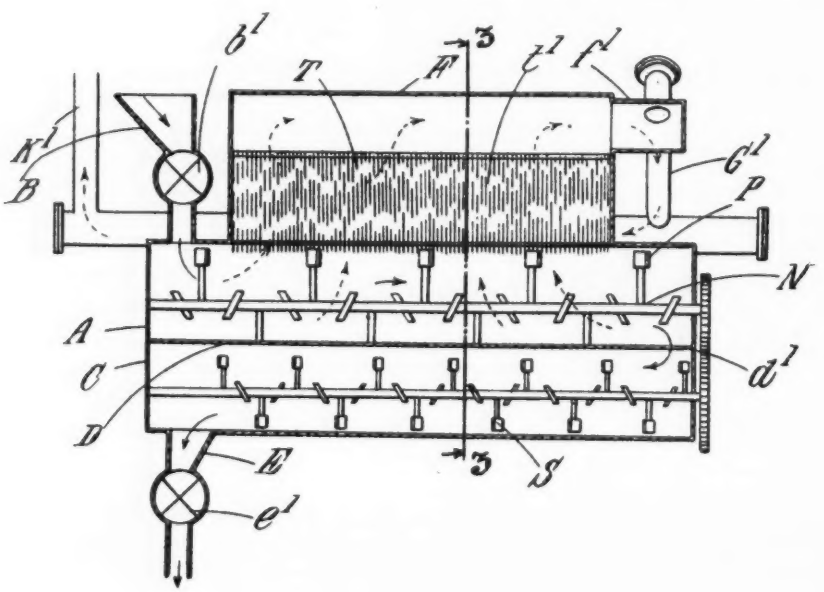
* * *

**Catalytic Cracking and Hydrogenation. U. S. P. 1 810 387, June 16, 1931, application filed Nov. 30, 1926 and in Great Britain May 27, 1926; Alberto Edoardo Bianchi and Galileo Guardabassi, assignors to "Intercarbo" Societe Anonyme pour la Carbonisation et la Traitement Catalytique des Combustibles.**

IN AN improved apparatus for production of motor fuels or the like from heavy oils etc., by simultaneous catalytic cracking and hydrogenation, the material is passed in a thin film along the bottoms of troughs in which agitators revolve, picking up films of the material on the agitator surfaces; and the vapors arising from the film are immediately exposed to dust or smoke and then to chains hung from a screen, whereby the desired reactions are much accelerated.

The material is fed into the trough A through the hopper B, under control of the valve b'. Under A is a smaller trough C, connected by the opening d' in the partition D and having an outlet E controlled by valve e'. The gas chamber F is in free communication with trough A and has a neck f' communicating with pipe G' and a like pipe crossing G'; through these the gases enter longitudinal pipes having filter screens; thence the gases pass through the vertical pipe K' and a like pipe to a main offtake pipe. The trough A has two agitators N (only one is shown) carrying oblique blades P; trough C has one agitator carrying oblique blades S. Many small metal chains T are hung from screen t' in the gas chamber F; their ends hang low enough to be kept in motion by the agitator blades. These chains, which are catalyst-coated, serve as a screen against dust, so that a dust cloud forms below them and must be traversed by rising vapors, which then pass in extremely fine streams through the screen of catalyst-coated chains. Troughs A and C, comprising the distillation retort proper, are set in a heater; another heater surrounds the reaction chamber F.

In the reaction which takes place in this apparatus, oil is cracked to lighter compounds, including some unsaturated hydrocarbons, and some hydrogen is evolved; but in presence of the catalyst, under the very favorable conditions which are provided, the unsaturated compounds are hydrogenated by the hydrogen.



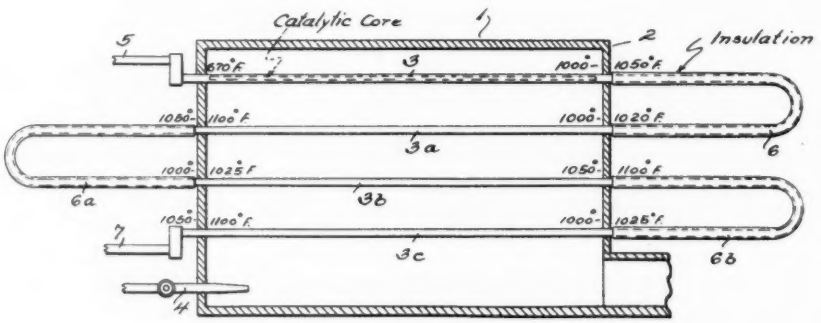

### What is Claimed

In cracking and hydrogenation of oils, a retort with means for continuous feed, agitators adapted to revolve in the retort, a reticulated screen above the agitators, chains hung therefrom to be vibrated by the agitators, means for withdrawing gases from the retort, and means for withdrawing residues from the retort.

* * *

**Vapor Phase Cracking. U. S. P. 1 811 194, June 23, 1931, application filed Aug. 21, 1928; Cary R. Wagner, assignor to Gyro Process Co.**

THIS invention relates to an improved in the so-called high temperature system of vapor phase cracking whereby the reaction temperature is moderated, fluctuations of temperature are reduced to a minimum and maximum cracking effect is obtained in each through-put of oil vapor through the converter.




These advantages are obtained in a converter (see drawing) having a bank of converting tubes 3, in one or more of which there is a core of catalytic material such as ferrous oxide. The converter 1 includes a heater having walls 2, a burner 4 and an oil vapor inlet 5, admitting preheated oil vapor at about 670°F. The thermal conditions in the converter are maintained so that the entering vapor is quickly heated to cracking temperature, being at about 1050°F. when it leaves the first pass in the tube bank. In the heat-insulated return bend 6, the internal area is adjusted to give a suitable rate of flow of the hot vapor. The return bends are empty, i.e. they contain no catalyst core. The vapors pass successively from return bend 6 through tube pass 3a, return bend 6a, tube pass 3b, return bend 6b and tube pass 3c to outlet 7, where the treated vapor is withdrawn for separation of the cracked products.

### What is Claimed

In vapor phase cracking, heating the vapor in a stream to cracking conditions, passing it through a zone of endothermic cooling, again heating to a cracking temperaure, and condensing and collecting the products.

Fig. 1—A 12-ton semi-trailer and 4-wheel truck tractor recently put into service on the Pacific Coast by an independent trucking company. A 2-inch meter is carried in the enclosed compartment on right rear

# Large Volume Truck Hauling of Gasoline On the Pacific Coast

By Jack Westsmith

N. P. N. STAFF WRITER

LOS ANGELES

A NEARLY ideal combination of comparatively lenient yet carefully regulated motor vehicle laws, uniformly paved highways and completely and efficiently equipped storage depots has reduced Pacific Coast gasoline transportation problems to a minimum.

No one set of rules or one formula can be outlined as responsible for effecting the economies in marketing practice and it is noteworthy that the various California oil companies have adopted different methods of achieving practically identical results.

For hauling gasoline short distances, within approximately 500 miles of the refinery, motorized tank truck and trailer assemblies have proven highly satisfactory. The adaptability of these units, operated for the most part by independent commercial trucking companies, makes them especially suitable for short-haul service. Compared with railroad tank car movement, they offer a greater flexibility and increased speed of delivery.

Primarily the tank line service was designed to transport gasoline and other petroleum products from refineries to distributing plants located at strategic points over the oil company's marketing territory. However, with the introduction of underground service station storage capable of handling dumps of 6000 gallons or over, a large part of this movement was routed direct from refinery to the retail points. In some instances, the gasoline is piped to steel storage at a considerable distance from the refinery and there delivered at loading racks to either these truck and trailer assemblies or to the oil company's tank trucks.

These latter facilities have capacities of from 1000 to 3000 gallons and still receive wide use as a supplement to the tank truck and trailer service for distributing smaller loads to points of retail consumption.

It is estimated that, in 1928, approximately 200 million gallons of gasoline was moved via tank truck lines and that some three million unit miles had been traveled. During 1930 the amount of gasoline shipped was raised to about 350 million gallons, but because of the diversity of the business over the state, it is difficult to obtain an accurate idea of the actual number of pieces of equipment in daily use.

Estimates by officials of some of the larger lines place the number of active units, in the neighborhood of 300, a unit consisting of a truck and trailer, with a combined capacity of between 5000 and 6000 gallons each.

One of the largest tank line companies on the coast estimates that, with a fleet of 65 units, each delivering on an average of one load per day, approximately 350,000 gallons of gasoline is moved daily. Some units will make as many as four

**Fig. 2—A fleet of semi-trailer units used by Rio Grande Oil Co. in the Los Angeles district. Photograph shows in the background, Olympic stadium, scene of the 1932 Olympic games**

loads in 24 hours, while others, in covering the distance from Los Angeles to Phoenix, Ariz., say, will require three or four days to make the round trip. This particular fleet stands the company an investment of about $650,000 for the equipment alone and requires an operating personnel of about 75, including regular and relief truck drivers, mechanics, and office help.

Under the impetus of success, these tank line companies have become a very definite factor in the Pacific Coast gasoline marketing structure, and through their stiff competition have caused material reductions in rail tariffs, the most recent of which was effective July 20. In making this latest cut, the freight on gasoline to certain points was reduced as much as 60 per cent and in some instances is now considerably under the tank line charge.

The following rates are typical for movement of gasoline from Los Angeles Basin refineries, both via tank truck and trailer and tank car.

| Point of delivery | Truck Rate Cents per Gal. | Rail Rate | Approximate Distance highway-miles |
|---|---|---|---|
| North from Los Angeles | | | |
| Ventura | .75 | .858 | 70 mi. |
| Santa Barbara | 1.00 | 1.122 | 100 |
| Santa Maria | 1.75 | 1.914 | 180 |
| San Luis Obispo | 2.00 | 2.112 | 220 |
| East from Los Angeles | | | |
| Riverside | .50 | .594 | 56 mi. |
| San Bernardino | .60 | .594 | 60 |
| Palmdale | .75 | 1.056 | 71 |
| Victorville | 1.00 | 1.08 | 101 |
| Barstow | 1.50 | 1.08 | 138 |
| South from Los Angeles | | | |
| Indio | 1.25 | 1.419 | 134 mi. |
| San Diego | 1.25 | 1.188 | 133 |
| Brawley | 1.50 | 2.145 | 210 |
| El Centro | 2.00 | 2.145 | 220 |
| Yuma, Ariz.* | 2.64 | 1.650 | 280 |
| Phoenix, Ariz.* | 4.50 | 2,970 | 470 |

*Points into Arizona were included in those receiving tariff reductions via railroad on July 20.

Improvements in design of tank line equipment have, of necessity, been toward elimination of excess weight so as to permit a greater pay load to be carried and still remain within the road weight limits. Pay load capacities on the initial tanker assemblies ranged in the neighborhood of 5200 gallons—2300 on the truck and 2900 on the trailer. Since then, through a gradual improvement that has culminated in the use of aluminum for tanks and even partially for chassis construction, this capacity has been increased to 7000 gallons, —3100 on the truck and 3900 on the trailer.

The past six months the larger tank line companies have made definite efforts to increase the pay load capacity of the equipment in use, by new steel type tank construction. There was a reduction in chassis weight, by suitable rearrangement of reinforcing that in some cases even increased the safety factor of the equipment.

A typical design for a truck tank of 2700 gallons capacity, used by one of the larger California tank line companies, incorporates the fuel compartment into the construction of the main tank shell, thus eliminating auxiliary fuel tanks from along the side of truck chassis, thereby effecting a slight reduction in weight, and also removing the fuel tank from danger of damage by side collisions.

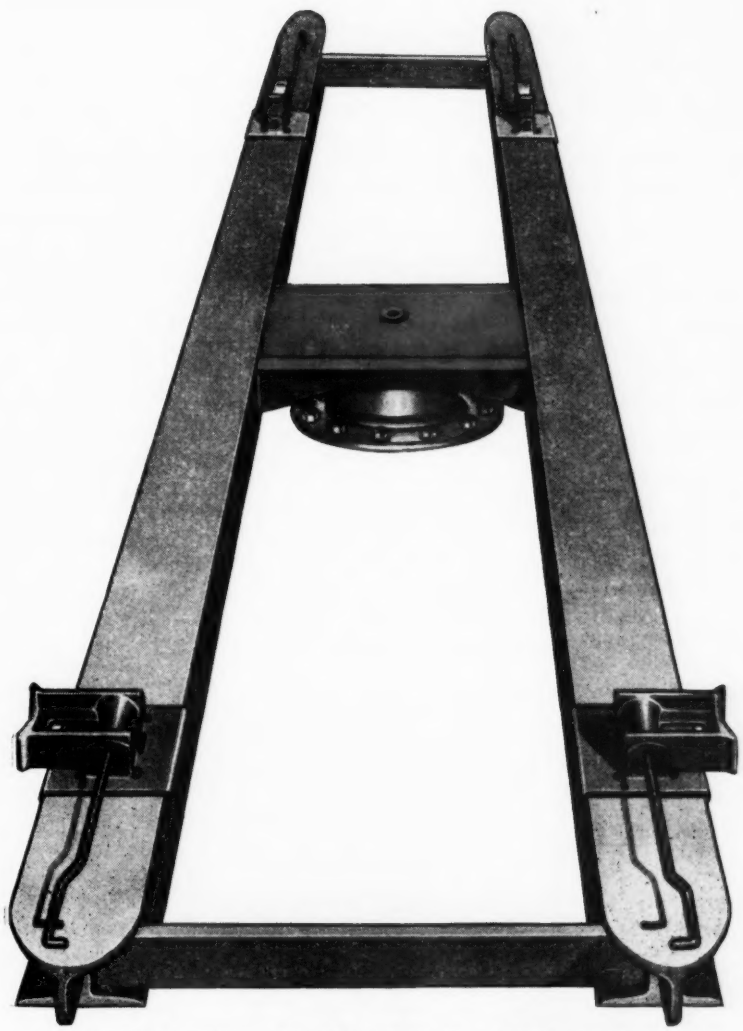
Because of a low center of gravity, the oval tank has been found to be more serviceable, although there are still a number of round and straight side tanks used on the Pacific Coast. Some of the tanks are made of 3/16-inch steel, with shell seams lap welded inside and out. The arrangement of baffles, constructed of 10 gauge steel, with manholes top and bottom, permits the shell to be entirely filled. Expansion is provided for in the tank dome capacity.

A 12-ton semi-trailer, 4-wheel truck, with a load capacity of 4000 gallons of gasoline and a fuel capacity of 250 gallons, carried in a forward compartment of the tank, has recently been put on the local market, see Fig. 1. It is to be used by an independent trucking company to haul gasoline to Phoenix, Ariz. and intermediate points, as well as locally. A 2-inch meter is included as part of the equipment for use when less than the full load is dumped. This meter is carried in an enclosed compartment in the rear of the unit.

One trucking company contemplates the use of a 3500-gallon trailer, together with a semi-trailer, to increase the load capacity to approximately 7500 gallons. Necessarily such a combination requires a careful interpretation of state vehicle laws.

Within the past three months, Rio Grande Oil Co. added three semi-trailer type trucks to its automotive fleet. They are identical in specifications, with tank capacity of 3000 gallons, divided into four equal compartments. The equipment also includes two 2-inch meters, each compounded to serve two compartments, and which deliver through strainer attachments and outlets on the

# LEAVE IT TO THE
# RED HEAD
## ROTARY LIFT



*Length of superstructure* 16'. *Width* 28". *Width over front axle supports* 30". *Width between beams* 18". *Weight complete* 1,300 *lbs. Red Head Model* 905 *has* 9½" *plunger. Red Head Model* 1005 *has* 10½" *plunger.*

—to speed up lubrication jobs, repair work or anything that has to be done to any car or light truck that comes into your stations. The Red Head gets them up easily and safely—where there's plenty of light and room to work. That means quicker work (more jobs for you), better work (customers who are really pleased enough to come back). Both mean more profits from every service your stations offer.

The Red Head's extra long superstructure is built with an eye to the needs of tomorrow as well as today. Sixteen feet long, 28" wide (30" over-all over the front axle supports). Five inch H-beams with sturdy equalizer bars provide plus strength and bring all the stress directly onto the more than ample plunger and plunger head. *And as cars grow longer and trucks heavier, you'll find the Red Head's rugged strength more than equal to the demands of the future.*

Four adjustable, self-locking axle supports and a differential support provide for handling any and all cars in any way the job requires. The extra-strong lifting unit insures safety and ease in handling any load you are likely to meet. The welded forged steel plunger head accommodates both roll-on and free-wheel super-structures, making the Red Head a real double duty lift.

The Red Head is a constant invitation for customers to drive in for thorough lubrication jobs that mean real profit for you. It saves time, speeds up work and helps your men turn out better work. Altogether it's a mighty good investment for your stations. Write for particulars to Rotary Lift Company, 1050 Kentucky St., Memphis, Tenn.

**THE ORIGINAL ROTARY LIFT**
**MEMPHIS, TENN.**

4259

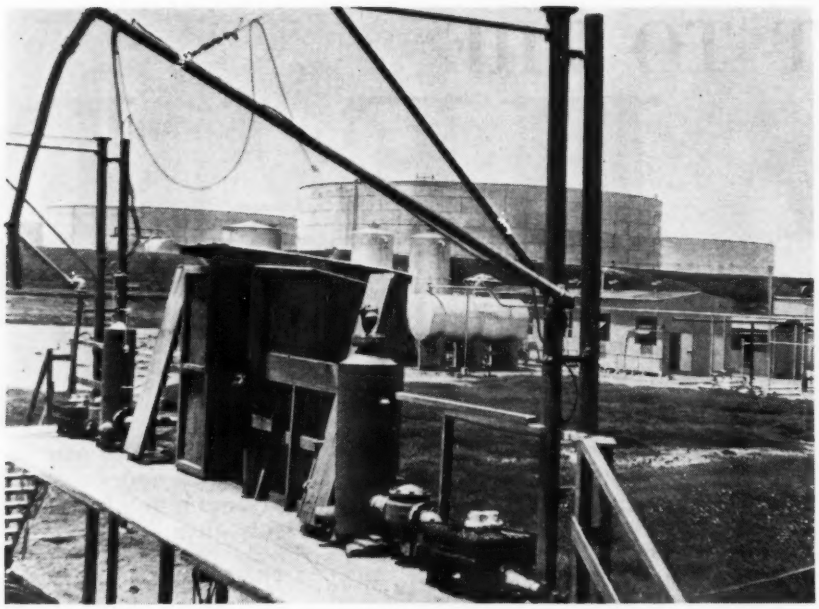


**Fig. 3—Loading rack at Associated Oil Co.'s Watson refinery. Note duplicate metering installations, with gas eliminator, strainer and meter in order up to outlet pipe.**

curb side at a rate of 35 to 37 gallons per minute. Both the metering equipment and a barrel and drum compartment on the opposite side are completely covered when the truck is in motion.

Other specifications include: six-wheel hydraulic brakes; over-all length 32 feet; weight loaded 38,380 pounds; rear wheel suspension attached direct to tank shell, eliminating the weight necessary in drop frame types of construction; three axles with weight load of 5980 pounds on the front, 15,850 pounds on the rear tractor and 16,550 pounds on the semitrailer. Fig. 2 shows this fleet in formation.

Recent changes in the California vehicle act, while threatening to outlaw some equipment now in use, also make it possible to adopt a greater variety of combinations of trucks and trailers and semitrailers, and clarifies technicalities that existed under the old statute.

On the matter of gross weight, the laws provide that a vehicle with two axles and four or more wheels on the highway may have a total weight of not to exceed 22,000 pounds. A vehicle with three or more axles and six or more wheels on the road is allowed 34,000 pounds gross. A four-wheeled vehicle and a two-wheeled semitrailer is also permitted 34,000 pounds, and a semitrailer with two or more axles may have a gross weight of 26,000 pounds in addition to the weight of the truck tractor.

The maximum permissible load of any combination is 68,000 pounds, or a six-wheeled tank truck—34,000 pounds—and six-wheeled tank trailer—34,000 pounds. The second largest combination is a six-wheeled truck tractor—34,000 pounds and a four-wheeled semitrailer—26,000 pounds, or a total of 60,000 pounds.

Advantages of tank truck and trailer hauling over tank car movement of gasoline, from the oil company viewpoint, were recently outlined by an executive of a major California marketing company as increased flexibility and convenience. That is, it is possible to obtain a tanker unit on a 24-hour schedule within a few hours notice, as

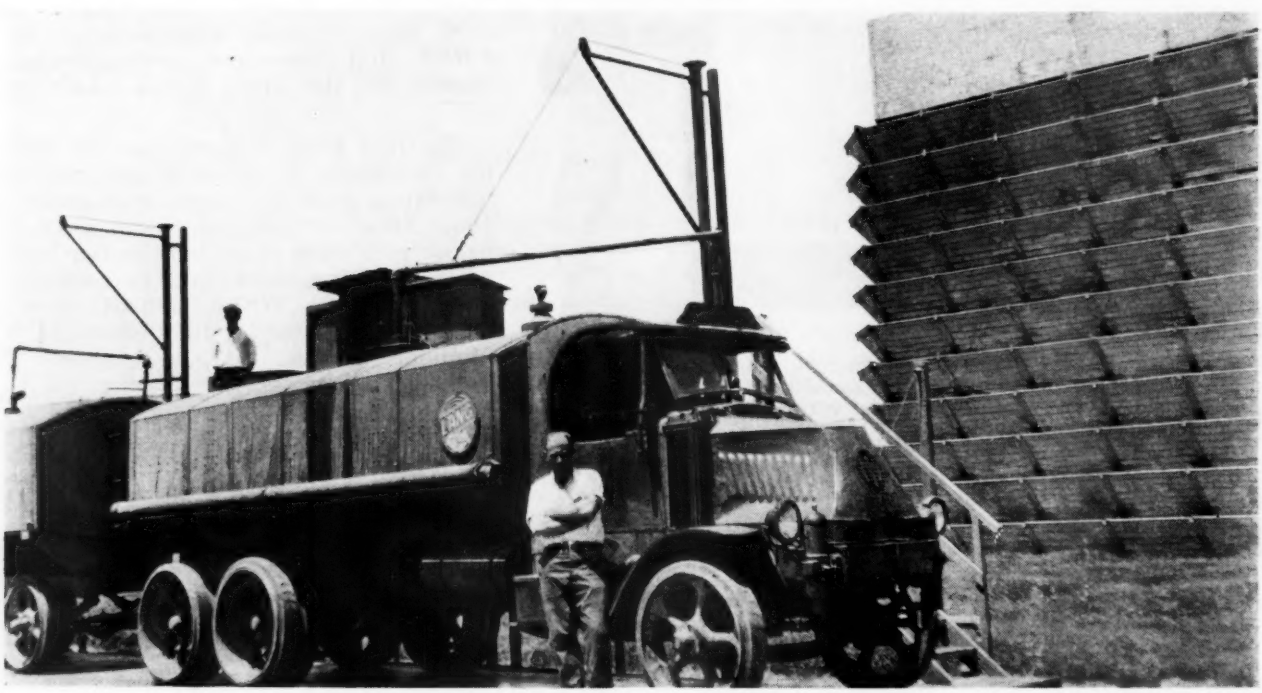


**Fig. 4—A 6000-gallon tank truck loading at Associated Oil Co.'s Watson refinery. Recent specifications on these motor truck assemblies call for oval tanks and pneumatic tires.**

**Fig. 5—Standard Oil Co. of California's most up to date loading rack, with two truck and trailer assemblies alongside and a third standing in line in the ample plant yard. Note galvanized iron spout operator on right truck is holding preparatory to placing in the opened dome of the tank. Truck on left is nearly filled and the operator is preparing to close quick action valve. Load capacities of each of these three units are between 6000 and 6200 and they operate under a permissible road weight limit of 34,000 pounds for each six-wheeled unit, or 68,000 pounds per assembly. Storage for each six-wheeled unit, or 68,000 pounds per assembly. Storage tanks in rear are the four 13,000-gallon tanks for Ethyl gasoline.**

against waiting until a rail switch is open. It is also possible to reach, with truck lines, many out of the way points that are not accessible by rail connections.

Truck transportation also affords a very flexible system of marketing operation, in that, by carefully routing the motor units, it is possible to reduce materially the storage investments at service stations or bulk plants, both in gasoline and steel tankage. Where, with tank cars supplying a bulk depot 100 to 150 miles from a refinery, it was necessary to keep at least a 48 to 72-hour supply of gasoline on hand, the speedier tanker units have permitted storage capacities in many cases to be reduced practically half and still maintain a safe margin of supply between loads.

Carrying less gasoline in small storage and shortening the time of transit between refinery and delivery point has also effected a substantial reduction in evaporation losses. Further, above the protest of California oil companies, rail tariffs on gasoline were based on an arbitrary rate of 6.6 pounds per gallon, whereas the average weight of the product shipped is between 6.15 and 6.25 pounds per gallon, depending upon the gravity. Tank line companies load their trucks according to these latter schedules.

Figures 3 and 4 show a truck and trailer unit at the Watson refinery loading rack of the Associated Oil Co. Note in particular the meters at the rack. Use of meters for measuring the flow of gasoline to the truck is a feature of all of this company's loading racks. Although metering is more and more becoming good practice at bulk plants and on oil-company-owned trucks, several marketing companies have hesitated to make the change from gauging to metering because of the initial expense involved. Experience has shown that a combination of the two methods of measurement sets up difficult problems of accounting, and for that reason it has been found advisable to adopt metering equipment 100 per cent throughout an individual department or not at all. Meters have been particularly useful in checking and eliminating leaks in gasoline from both refineries and bulk plants, leaks that could not be accounted for by evaporation losses alone.

At this particular loading rack, the gasoline is pumped from nearby storage tanks through four-inch lines to double loading spouts at 90 pounds pressure. A screw thread control gate is placed on the line ahead of gas eliminator and metering equipment, so as to eliminate back pressure on the meter that might interfere with accurate measurements.

Prior to loading, the unit is run onto an eight-inch concrete slab, 10 feet wide and 55 feet long, in front of the rack. This pavement is absolutely level and maintains the truck and trailer on an even keel during loading. With a distance of 32 feet between the spout lead-in lines it is possible to load any combination of truck and trailer through the two-inch flexible hoses and swivel joints.

In general, it takes from 22 to 27 minutes to load a 6000-gallon tank truck and trailer assembly at this rack. More recent installations have materially reduced the time of loading.

One of the most outstanding of these later installations is operated by the Standard Oil Co. of California at its Monte-

**Fig. 6—Another view of Standard's Montebello loading rack. Note wooden platforms to left of first 4-inch standpipe that let down onto tank shell as a walk during filling operations. A 1½-inch yard service meter is located under right stairway**

bello bulk plant, shown in Figs. 5 and 6. Gasoline is supplied to the loading rack through an 8-inch line from a 55,000-barrel storage tank, located on a pipe line from the El Segundo refinery.

At the rack the fluid is diverted through four, 4-inch double swing spouts, opened and closed by "handy" or quick action valves. An electrical booster pump, with a thermostat cut-out, that automatically starts or stops the pump when the spout valve is respectively opened or closed, gives the rack a flow rate of 1200 gallons per minute. Using two spouts it is possible to fill a 6000-gallon tank truck unit in about six and one half minutes, including the time necessary to connect static plugs, inspect outlet valves, and connect spout nozzles.

In an actual test, the total time from the moment the unit pulled into the plant yard until it was loaded, sealed, and was pulling out was 9.5 minutes.

Galvanized iron filling spouts, four inches in diameter and long enough to reach nearly to the bottom of the tank compartment, supplant the usual flexible hose connections. They are connected to the swing spouts just below the "handy" valves by means of a lock thread. A chain is used to ground the outlet ends of these galvanized pipes to the inside of the steel tank compartment.

The rack is equipped to handle Ethyl gasoline in addition to the regular product, with a separate booster pump maintained on the Ethyl line, which is supplied from four 13,000-gallon storage tanks that are in turn supplied from the refinery by tank car.

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### Discontinues Peerless Brand

TORONTO — The Peerless brand of gasoline marketed in eastern Canada for many years by the British American Oil Co. has been discontinued. The company's highest grade of motor fuel is Peerless Ethyl, its second brand, Nevernox, and a third grade was recently installed to sell at 17 cents per Imperial gallon in Toronto, exclusive of 5 cents tax.

## NEW EQUIPMENT

**A. Y. McDonald Mfg. Co.,** Dubuque, Ia., has developed a gauge hatch attachment for bulk storage tanks, which eliminates the necessity of gauging through the vent. With the usual vent, it was necessary to remove the screen before gauging which increased the danger of damaging the screen and neglecting to replace it.

By placing the gauge hatch attachment away from the vent there is no opportunity for such carelessness, the company claims.

The gauge hatch cap is of brass, preventing the possibility of spark. It closes automatically and may be held open with the hand or foot and closes the minute it is released. The gauger cannot go away and leave it open. A locking arrangement prevents unauthorized persons from disturbing the contents of the tank.

* * *

**Stewart-Warner Corp., 1826** Parkway, Chicago, is making a luminous, Write-It-Urself sign for service stations and oil retail outlets. The sign consists of a writing surface of clear, transparent glass, mounted in a frame and with a base.

In this base is the lighting equipment which sends light rays up through the glass to illuminate the lettering on the glass. Due to construction of the sign and the jet-black backing of the glass, the illumination affects the lettering only and shows it up in the actual colors used in the sign lettering.

* * *

**The DeVilbiss Co., Toledo, O.,** has developed an improved small portable spray-painting outfit, easily operated and carried by one person.

It is low priced and is recommended for touch-up work on small painting or refinishing jobs in offices, buildings, residences, etc. It is electrically driven and operates on any light socket.

# Car Dealers Include Lubrication In Flat Rate Service Plan

CHICAGO

IF THE latest plan for selling oil and lubricating jobs to Chicago buyers of Graham-Paige cars turns out profitably, then the oil companies are probably facing more intensive competition for the privilege of keeping the nation's motor cars running smoothly.

This idea, called the "Co-Operative Service Plan" was put into effect in March by the Bird-Sykes Co., 2215 S. Michigan ave., Chicago, dealer for Graham-Paige cars.

The plan, briefly, is to sell Graham-Paige car owners their motor oil, lubricate their cars, inspect them mechanically and take care of minor repairs, all for $7 a month or for each 1000 miles of travel, whichever may be the first to occur, over a period of one year or the first 12,000 miles.

Other Graham-Paige dealers in Chicago also are offering this service. Results are being closely watched by the Graham-Paige Motors Corp., which may extend a similar plan to dealers in other cities.

"Thorough and intelligent lubrication is the first essential in obtaining the best results

## Monthly Mechanical Inspections and Adjustments

1. Road test.
2. Carburetor—Clean screen and adjust.
3. Carburetor Choke — Inspect and adjust.
4. Distributor Points—Clean and adjust.
5. Spark Plugs—Clean and adjust.
6. Fuel Pump—Clean.
7. Valve Tappets — Adjust to gauge.
8. Fuel Lines—Inspect for loose connections.
9. Motor Chain—Adjust.
10. Fan Belt—Adjust.
11. Heat Control Manifold — Inspect.
12. Water Pump Nuts—Tighten
13. Generator — Clean armature and adjust.
14. Starting Motor—Clean armature.
15. Lighting System — Check lights, horn, etc.
16. Battery — Hydrometer test and add water.
17. Hose Connections—Tighten.
18. Cylinder Side Plates—Inspect.
19. Cylinder Head—Tighten.
20. Windshield Wiper—Inspect.
21. Brakes, Foot and Hand—Inspect.
22. Clutch—Adjust pedal to 1-inch clearance.
23. Wheel Alignment—Tram.
24. Tire Pressure — Adjust to proper pressure.
25. Steering—Adjust shaft and connections.
26. Spring Clips and Shackles—Tighten.
27. Body Bolts—Tighten.
28. Motor Bolts—Tighten.
29. Door Latches and Hinges—Adjust.

## Monthly Lubricating Operations

1. Crankcase—Oil, drain and refill.
2. Transmission—Fill to level.
3. Differential—Fill to level.
4. Universal Joints—Repack.
5. Distributor Cam and Shaft—Lubricate.
6. Steering — Complete lubrication
7. Generator and Starter—Oil.
8. Rear Wheel Bearings — Repack.
9. Front Wheel Bearings — Repack.
10. Brakes—Refill tank.
11. Fan—Fill reservoir.
12. Speedometer Shaft—Grease.
13. Clutch Shaft and Release Bearing—Lubricate.
14. Water Pump—Lubricate.
15. Miscellaneous—Door hinges, latches, brake ratchet, brake connections and throttle rods.

**For $7 Graham-Paige car owners in Chicago have this list of work done on their cars. The list is included in a folder selling monthly maintenance service including lubrication and oil in competition with our stations**

The Bulk-Lube Salesman That Outsells Them All!

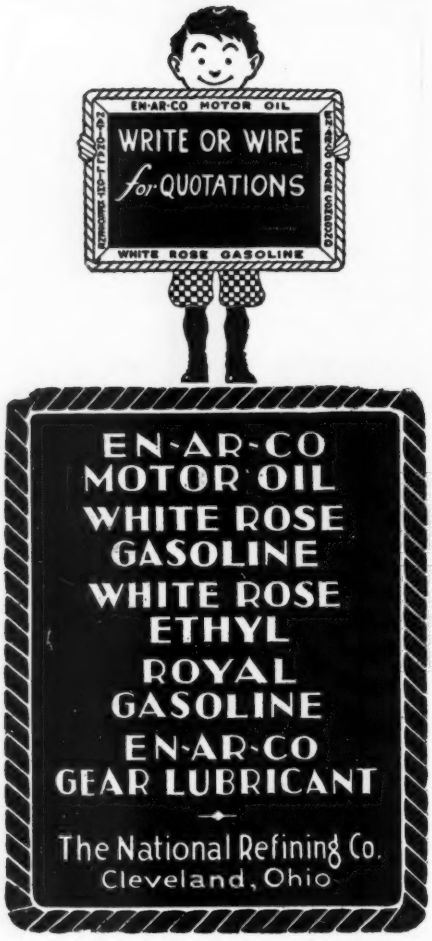
This sturdy unit is unequalled as a bulk sales booster of premium priced oils for industrial agricultural and private use. Has adjustable sliding intake for draining 15 to 60 gallon capacity drums.

A precision built, all metal unit requiring no cup leathers or springs. Rapid in action. Also adapted for *gasoline, kerosene* or *alcohol.*

QUALITY BUILT Bennett Dispensing Equipment For Petroleum Products

*Write for* MODEL 200 *Bulletin*

SERVICE STATION EQUIPMENT CO
Main Office: CONSHOHOCKEN, PA.
(Suburb of Philadelphia)
Branches, Warehouses and Organized Service Coast to Coast — U. S. and Canada. Pacific Coast — Rheem Mfg. Co., Division of Service Station Equipment Co. Foreign Division — 32 Broadway, New York, N. Y.




# EQUIPMENT

## you no longer need

can be turned into cash by advertising it in the classified section.

There is always a buyer somewhere. That's why it pays to use classified advertising. When you have any outgrown or unnecessary equipment just tell the 17,000 oil men who read *National Petroleum News* each week.

Try it—the results will surprise you.

**The Cost is Small**

10c a word, minimum $3.00. If set in special type or with border—$4.00 a column inch. Forms close Saturday preceding date of issue. All classified advertisements payable in advance.

**National Petroleum News**
1213 West 3rd St., Cleveland, Ohio

from a car," explained George H. Bird, president, "and we hope to anticipate and prevent delays and trouble for both us and the car owner."

"It seems that the majority of motorists don't have their cars inspected until something goes wrong, and much time and trouble can be saved by regular inspection and lubrication."

No contract is made with the car owner. All work is on the monthly, or 1000 mile, basis and is to be paid for at that time. The car owner can then come in for the next regular inspection or not, just as he chooses, as he is under no obligations.

While he will not get the benefit of the $7 price if he doesn't come regularly, arrangements can be made to miss one or two periods if the car owner is on a trip.

The complete monthly maintenance charge of $7 is apportioned as follows: 1, draining and refilling engine with high quality oil (a nationally advertised Pennsylvania lubricant is used) according to the season, $1.80; 2, thoroughly lubricating all parts of the car, using five different oils and greases as required by the different units, $1.70, this includes keeping the transmission and differential filled to the proper levels; 3, a complete mechanical inspection, taking care of all adjustments, and including all repairs, both labor and materials, $3.50, this includes a road test, as well as inspection of the parts of the car.

The inspection and greasing and other work takes about half a day, if only minor adjustments have to be made.

The plan does not include the furnishing of tire and battery repairs, anti-freeze solution, the replacement of lost or stolen parts, or repairs or damages which, in the opinion of the Bird-Sykes agency, are due to accidents, abuse or neglect.

On analysis, the co-operative plan seems to offer more of an appeal to the motorist in the charge for the mechanical inspection and repairs rather than in any saving in the charge for oil and lubrication.

The price charged for oil is the regular retail price for that brand and a thorough lubricating job can be had at many service stations in Chicago for as low as $1.

The Bird-Sykes people say they could not afford to offer the mechanical inspection and take care of the labor and repairs for $3.50 a month, if they were not sure the car was being properly lubricated.

Response to the co-operative plan from Graham-Paige owners has been highly satisfactory so far, says Mr. Bird.

At present about 50 per cent of their purchasers of new cars have taken advantage of the service. Two or three come from as far as Evanston. However, the Bird-Sykes company feel that the plan has not been in operation long enough to determine whether it will prove entirely satisfactory.

Although practically all the Graham-Paige dealers in the city are offering a similar service, it is not inter-changeable among the dealers. The car owner cannot get this complete service from one dealer one month and at another dealer the next month, but each dealer takes care of those to whom he has sold a car. This makes each dealer responsible only for those cars coming to him regularly, and in which he is most interested.

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### A. P. I. Production Division Changes

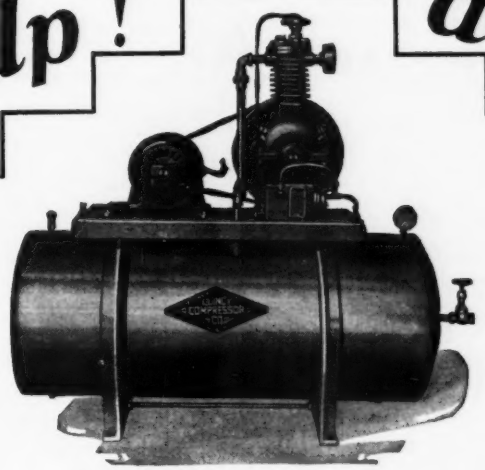
NEW YORK—Recent changes in the American Petroleum Institute's Division of Production Committee on the Standardization of steel tanks for oil storage include the appointment of R. W. Howe, Atlantic Pipe Line Co., Dallas, who has been made national chairman. He succeeds C. O. Wilson, resigned.

W. C. Shutts, Humble Oil & Refining Co., Houston, has been made national secretary of the committee, succeeding Mark W. Daw, resigned.

---

**Reo Motor Car Co., Lansing,** Mich., has developed a calculator, a celluloid slide rule, telling accurately the number of gross pounds that the engine of the car can pull under varying conditions, noting tire sizes and rear axle ratios required. It is furnished all Reo speed wagon owners and prospects, as an aid in planning loads for various routes.

# Efficiency Up! Air Costs down!



**Model F-2**

This unit will take care of all Service Station requirements,—operating car lifts, greasing, tire inflation, etc. Automatic; single stage, air cooled. Vee Belt driven. Size of compressor, 3 x 3½. Displacement 6 to 8.6 with motors from 1 to 1½ H.P. 150 lbs. cut out pressure. Complete with 25 ft. hose, chuck, compressor muffler, outlet valve and all fittings.

WHEN a highly efficient Quincy Compressor goes to work in a Service Station, efficiency immediately steps upward and air costs take a tumble.

The economy of Quincy Compressors lies in their ability to supply dependable service for a long, long time at the lowest possible cost for power and maintenance. And this ability is the direct result of the most modern compressor design coupled with workmanship and inspection of the highest order.

Look into Quincys before you buy. The coupon at the right will bring all details.

Quincy Compressor Co.,
223 Maine St., Quincy, Ill.

Please send complete information about Quincy Compressors suitable for Service Stations and Garages.

Name.....

Address.....

City..... State.....

# QUINCY Compressors

223 Maine St., QUINCY, ILLINOIS

SERVICE AND SALES

Atlanta, Ga.
Birmingham, Ala.
Chicago, Ill.
Cincinnati, Ohio
Cleveland, Ohio
Davenport, Iowa
Detroit, Mich.
Houston, Texas
Kansas City, Mo.
Memphis, Tenn.
Newark, N. J.
New Orleans, La.
Richmond, Va.
St. Louis, Mo.
Syracuse, N. Y.
Washington, D. C.

*Also in other important centers*

**Above is a "bare" Model A, the heart of many Quincy water cooled models. Made in three sizes, 1¼ x 1½, 2½ x 2½, 3 x 3½. 150 lbs. intermittent pressure.**

P-1

# Merchandising and Jobbing Ideas Marketers Are Using

By E. L. Barringer

N. P. N. STAFF WRITER

SEVERAL modern ideas in station layout and equipment are incorporated in a new station opened by the Standard Oil Co. of Indiana in Kalamazoo, Mich., that are of special interest to the trade.

The exterior and interior walls are of a washable material. This will help keep the place clean and attractive. Unless radical changes are made in stations this one will see many years of service before it is discarded.

There are two gasoline pump islands with three meters on each. One island is parallel to the main street, the other parallel to the side street. As there is no canopy the gasoline outlets are separate units from the station building. Consequently the pumps are placed in the most convenient location for the customer, and not tied on to the station building.

The station has three fine display windows. One on each side at the front, and one across the corner.

Inside the station there are four service alleys, three pits for lubrication, and one with a solid floor for servicing tires. Heat is obtained from a hot water system and blowers; one unit in the lubrication room and one in the station office.

To heat the bottom of the pits the blower has a cold air conduit from the floor, about two feet square, so the fan pulls cold air out of the pit and blows it across the hot water coils out into the room.

Blowers have been popular for heating enclosed lubrication rooms, but this is one of the original installations for circulating air from a pit. As the cold air settles into the pit this will be the coldest part of the station, and with frequent opening of the doors to admit autos it is difficult to keep the pit at a comfortable working temperature.

Adequate lighting is provided in the pits through extension lamps. These lamps are on a reel that pulls it overhead, out of the way. On the end of the wire protector around the lamp is a small hook so it can be held in place under an auto by catching over a rod.

* * *

### Independent Jobber Approaches 37th Birthday

In these days of rapid business changes a company that has reached the ripe old age of 15 or 25 years is considered one of the early settlers. Yet the Independent Oil Co., at Kalamazoo, Mich., was on old company 25 years ago.

On Oct. 8 the company will celebrate its thirty-seventh birthday. P. A. Cole founded the company in 1897. He recalls that in those days the serv-

**A modern station of the Standard Oil Co. of Indiana with several new features in equipment and design**

ice station was still an outlet of the future. Grocery stores were the jobber's customers then, to market "coal oil." And the jobber was not concerned with repair bills, oil and gasoline in figuring his delivery costs. The big question was how much oats to the ton-mile.

Mr. Cole has one business virtue that may seem a bit old fashioned, but a virtue that might have been helpful to many business men in the past two years. He has always discounted every bill.

---

### August Delivery Cuts Fuel Oil Costs

Distribution costs on domestic burner oils has been reduced sharply by the Abshire Oil Co., Goshen, Ind., through making most of the deliveries in August.

Many of the home burner installations fueled by the Abshire company have 3000 gallon storage tanks. This quantity carries these homes over most of the winter.

In the contract the company has the privilege of filling the customer's storage tank in August. Consequently, these tanks are filled before the first frost.

Through doing the bulk of home delivery work in the fall, the company is able to operate the fuel oil storage department of the bulk plant without any expense for heat.

Only a few burner oil deliveries are required during the winter, to the larger homes and to office buildings. By enlarging the lines to 3-inch pipe on the truck loading dock, and 2 inches on the truck unloading line, the need for heat has been eliminated entirely.

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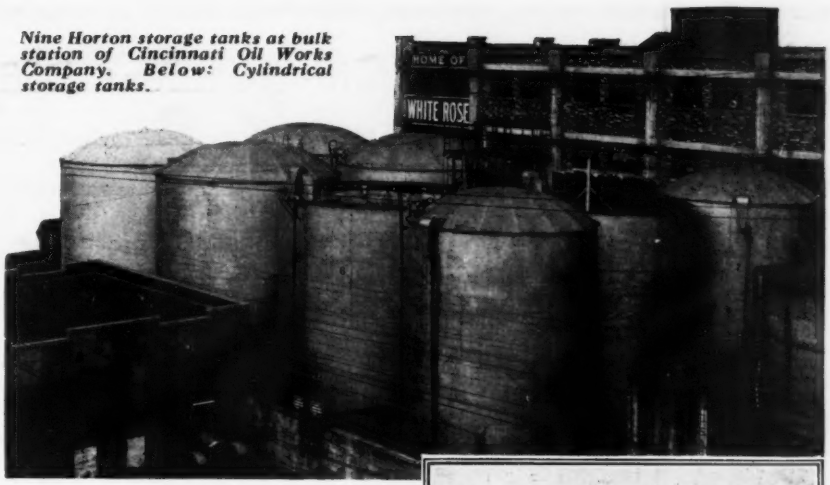
### Jobber Profits by Painting Trucks for Competitors

A mid-western jobber has turned a neat profit from painting oil trucks for competing companies. This jobber has the equipment at his bulk plant, steam for removing old paint and sprayers, for his own automotive units. With the equipment at hand it takes only a little additional paint and labor to handle more jobs, jobs from other oil companies that would go to commercial paint shops anyways.


*Nine Horton storage tanks at bulk station of Cincinnati Oil Works Company. Below: Cylindrical storage tanks.*



HORTON MARKETING TANKS

for economical storage

HORTON field erected tanks in capacities of 25,000 gallons and up provide economical bulk storage for gasoline and fuel oil marketers. They ordinarily provide more economical storage than several riveted-up tanks of the same total capacity. Shipments are made promptly from the nearest of our four fabricating plants and erection is handled by our own experienced crews.

Field erected tanks are built to our standard designs, to A.P.I. specifications or to designs of the customer. They can be equipped with steel cone roofs or with Wiggins Roofs which protect stocks from evaporation loss and fire hazards.

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| | | | |
|---|---|---|---|
| Cleveland | 2206 Midland Bank Bldg. | Chicago | 2125 Old Colony Bldg. |
| Houston | 1118 Electric Bldg. | Detroit | 1513 Lafayette Bldg. |
| Tulsa | 2407 Exchange Bank Bldg. | Birmingham | 1534 Fiftieth St., N. |
| New York | 3145 Hudson Terminal Bldg. | Dallas | 1239 Burt Bldg. |
| Philadelphia | 2614 "1616" Walnut St. Bldg. | San Francisco | 1060 Rialto Bldg. |
| Boston | 1516 Consolidated Gas Bldg. | Los Angeles | 1322 Pacific Mutual Bldg. |

HORTON TANKS

NPN 9-23 Gray

# Compilation Of Mid-Continent Refinery Operations

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## Mid-Continent Refinery Operations, Week Ended Sept. 18 (By Telegraph)

| | Kansas | Oklahoma | North & Cent. Texas | West Texas | North La.-Ark. | Total Week Ended Sept. 18 |
|---|---|---|---|---|---|---|
| Plants Reporting | 10 | 23 | 23 | 10 | 10 | 76 |
| Da. Av. Cap. (bbls.) | 94,000 | 162,500 | 107,400 | 71,500 | 60,700 | 496,100 |
| Da. Cracking Capacity | 53,200 | 64,600 | 23,100 | 26,250 | 31,700 | 198,850 |
| Da. Av. Crude Runs | 63,589 — 4.7 | 121,055 — 4.6 | 65,953 — 3.7 | 22,319 — 32.1 | 46,213 — 3.2 | 319,129 — 7.0 |
| Da. Av. Other Oil | 6,024 — 20.3 | 3,171 — 6.2 | 2,805 + 33.4 | 582 +881.6 | 21,239 + 16.1 | 33,828 + 7.8 |
| **GASOLINE—Gallons** | | | | | | |
| Stocks, Sept. 11 | 22,057,000 | 35,616,000 | 18,881,000 | 15,799,000 | 7,595,000 | 99,948,000 |
| Prod. 9-11 to 9-18 | 11,905,000 — 7.0 | 20,904,000 — 1.7 | 10,548,000 + 0.4 | 2,317,000 — 32.6 | 6,677,000 + 4.5 | 52,351,000 — 3.8 |
| Ship. 9-11 to 9-18 | 14,126,000 + 46.4 | 16,929,000 + 0.4 | 9,438,000 — 15.6 | 2,178,000 — 25.7 | 6,495,000 + 35.2 | 49,166,000 + 8.3 |
| Stocks, Sept. 18 | 19,836,000 — 10.1 | 39,591,000 + 11.2 | 19,991,000 + 5.9 | 15,938,000 + 0.9 | 7,777,000 + 2.4 | 103,133,000 + 3.2 |
| Ratio Sales to Prod. | 118.7% | 81.0% | 89.5% | 94.0% | 97.3% | 93.9% |
| **KEROSINE—Gallons** | | | | | | |
| Stocks, Sept. 11 | 9,882,000 | 13,630,000 | 2,920,000 | 17,000 | 976,000 | 27,425,000 |
| Prod. 9-11 to 9-18 | 1,998,000 + 13.0 | 2,445,000 — 3.3 | 817,000 — 22.6 | 18,000 — 18.2 | 399,000 — 15.8 | 5,677,000 — 2.9 |
| Ship. 9-11 to 9-18 | 2,505,000 — 27.3 | 3,707,000 +162.3 | 628,000 — 11.4 | 4,000 — 83.3 | 680,000 + 13.3 | 7,524,000 + 21.6 |
| Stocks, Sept. 18 | 9,375,000 — 5.1 | 12,368,000 — 9.3 | 3,109,000 + 6.5 | 31,000 + 82.4 | 695,000 — 28.8 | 25,578,000 — 6.8 |
| Ratio Sales to Prod. | 125.4% | 151.6% | 76.9% | 22.2% | 170.4% | 132.5% |
| **STOVE DISTILLATE—Gallons** | | | | | | |
| Stocks, Sept. 11 | 2,054,000 | *14,073,000 | 102,000 | 77,000 | 19,000 | *16,325,000 |
| Prod. 9-11 to 9-18 | 493,000 + 26.1 | 1,058,000 + 0.7 | 15,000 — 82.8 | 27,000 | 93,000 | 1,686,000 + 8.4 |
| Ship. 9-11 to 9-18 | 611,000 + 37.6 | 569,000 — 50.6 | 38,000 — 74.7 | 21,000 — 27.6 | 69,000 +283.3 | 1,308,000 — 27.0 |
| Stocks, Sept. 18 | 1,936,000 — 5.7 | 14,562,000 + 3.5 | 79,000 — 22.5 | 83,000 + 7.8 | 43,000 +126.3 | 16,703,000 + 2.3 |
| Ratio Sales to Prod. | 123.9% | 53.8% | 253.3% | 77.8% | 74.2% | 77.6% |
| **GAS OIL—Gallons** | | | | | | |
| Stocks, Sept. 11 | 9,219,000 | 45,707,000 | 7,065,000 | 4,539,000 | 10,164,000 | 76,694,000 |
| Prod. 9-11 to 9-18 | 682,000 — 26.5 | 428,000 +199.3 | 746,000 + 36.1 | 529,000 + 5.8 | 2,527,000 — 1.6 | 4,912,000 + 4.8 |
| Ship. 9-11 to 9-18 | 534,000 — 25.8 | 845,000 — 67.8 | 321,000 — 11.6 | 2,514,000 +554.7 | 2,556,000 — 25.5 | 6,770,000 — 10.0 |
| Stocks, Sept. 18 | 9,367,000 + 1.6 | 45,290,000 — 0.9 | 7,490,000 + 6.0 | 2,554,000 — 43.7 | 10,135,000 — 0.3 | 74,836,000 — 2.4 |
| Ratio Sales to Prod. | 78.3% | 197.4% | 43.0% | 475.2% | 101.1% | 137.8% |
| **FUEL OIL—Gallons** | | | | | | |
| Stocks, Sept. 11 | 22,776,000 | 74,359,000 | 83,601,000 | 31,141,000 | 22,557,000 | 234,434,000 |
| Prod. 9-11 to 9-18 | 5,149,000 — 10.0 | 8,332,000 + 8.2 | 5,951,000 — 1.6 | 2,322,000 — 44.2 | 5,441,000 — 1.6 | 27,195,000 — 6.7 |
| Ship. 9-11 to 9-18 | 5,751,000 + 1.5 | 7,314,000 + 4.0 | 4,952,000 + 11.3 | 5,123,000 + 71.5 | 5,531,000 + 5.2 | 28,671,000 +12.9 |
| Stocks, Sept. 18 | 22,174,000 — 2.6 | 75,377,000 + 1.4 | 84,600,000 + 1.2 | 28,340,000 — 9.0 | 22,467,000 — 0.4 | 232,958,000 — 0.6 |
| Ratio Sales to Prod. | 111.7% | 87.8% | 83.2% | 220.6% | 101.7% | 105.4% |

## Gasoline Produced by Various Methods, Week Ended Sept. 18

| | Kansas | % of Total | Oklahoma | % of Total | North & Cent. Texas | % of Total | West Texas | % of Total | Louisiana-Arkansas | % of Total | Total | % of Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Straight Run | 6,543,000 | 55.0 | 13,260,000 | 63.4 | 6,461,000 | 61.3 | 2,142,000 | 92.4 | 3,545,000 | 53.1 | 31,951,000 | 61.0 |
| Cracked | 4,445,000 | 37.3 | 5,916,000 | 28.3 | 2,998,000 | 28.4 | 41,000 | 1.8 | 2,619,000 | 39.2 | 16,019,000 | 30.6 |
| Natural | 917,000 | 7.7 | 1,728,000 | 8.3 | 1,089,000 | 10.3 | 134,000 | 5.8 | 513,000 | 7.7 | 4,381,000 | 8.4 |
| Total | 11,905,000 | | 20,904,000 | | 10,548,000 | | 2,317,000 | | 6,677,000 | | 52,351,000 | |

+ or — columns are % change from previous week.
*Revised

## Mid-Continent Gasoline Shipments Increase 3,100,000 Gallons

Staff Special—By Telegraph
TULSA, Sept. 22

GASOLINE shipments from Mid-Continent refineries reporting weekly to this publication were increased 3,700,000 gallons in the week ended Sept. 11. They were still about 5,400,000 gallons below the level reached in the last week of August when distributors were ordering out extra gasoline to care for anticipated holiday requirements.

Indications are that the Labor Day holiday consumption in the Middle West did not come up to expectations. It is possible, too, that the recent downward tendency in gasoline prices has had an influence on the rate of buying.

To compensate for the lower demand reporting refiners reduced their runs of crude to stills 24,000 barrels daily average. Reductions were made in all districts in the Mid-Continent. The lower throughput cut gasoline output 2,000,000 gallons. This was not enough, however, to keep gasoline stocks from continuing to pile up.

## Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended Sept. 18. Change in stocks figures from Aug. 21.

**GASOLINE**

| | Gallons |
|---|---|
| Production | 216,800,000 |
| Shipments | 198,173,000 |
| Net change in stocks | +18,627,000 |
| Ratio sales to production | 91.4% |

**KEROSINE**

| | |
|---|---|
| Production | 23,927,000 |
| Shipments | 25,894,000 |
| Net change in stocks | —1,967,000 |
| Ratio sales to production | 108.2% |

**STOVE DISTILLATE**

| | |
|---|---|
| Production | 6,127,000 |
| Shipments | 5,352,000 |
| Net change in stocks | +775,000 |
| Ratio sales to production | 87.4% |

**GAS OIL**

| | |
|---|---|
| Production | 23,878,000 |
| Shipments | 29,503,000 |
| Net change in stocks | —5,625,000 |
| Ratio sales to production | 123.6% |

**FUEL OIL**

| | |
|---|---|
| Production | 112,453,000 |
| Shipments | 103,890,000 |
| Net change in stocks | +8,563,000 |
| Ratio sales to production | 92.4% |

The total increase was 3,100,000 gallons during the week. Kansas refiners were the only ones able to draw on inventories.

Kerosine shipments rose 1,300,000 gallons during the week and enabled refiners to draw 1,800,000 gallons from storage. Distillate demand was less active during the heat wave and stocks increased. Stocks of both gas oil and fuel oil were reduced.

## Nebraska Oil Men Meet Dec. 9-11 at Omaha

LINCOLN, Neb.—Nebraska oil men will meet Dec. 9, 10, and 11 at the Paxton hotel, Omaha, for the eleventh annual convention of the Nebraska Petroleum Marketers, Inc. The formal program has not been announced yet, but C. M. Sutherland, secretary, promises an interesting meeting on problems pertaining to Nebraska oil men. The Omaha Petroleum Club will be the host and provide entertainment for the convention.

**Refinery Working Overtime**

TORONTO—The normal daily capacity of 5000 barrels each for the Toronto and Montreal refineries of the McColl-Frontenac Co. is being exceeded by overtime operations, according to reports.

John Irwin, president, says that the increase in the tariff on imported gasoline and enforcement of anti-dumping regulations are helping Canadian refiners materially this year.

## Oil Trademarks For Copyright

THE following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Barrister Building, Washington, D. C. trademark specialists.

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"U. S. OIL COMPANY."—and design. Ser. No. 309,831. U. S. Oil Co., Providence, R. I. For lubricating oils and greases.

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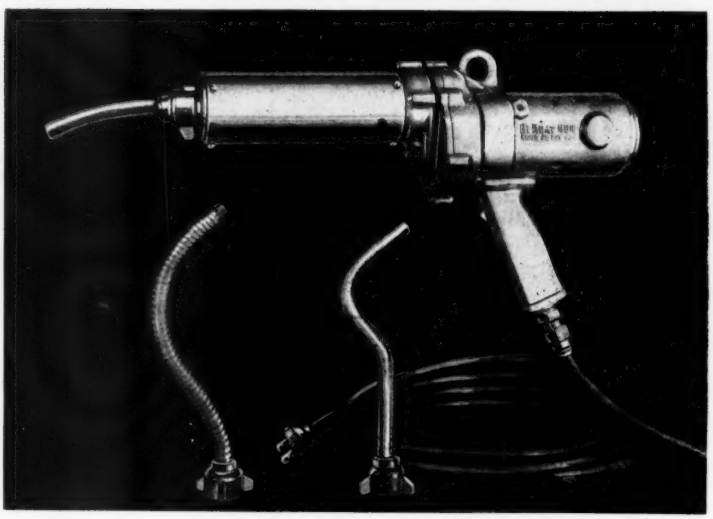
Stations desirous of building good will among their customers will find the Hi-Heat Gun an invaluable asset in creating repeat business.



Attached to any light socket, the Hi-Heat Gun operates on 110 volts either A.C. or D.C. current and develops a temperature of 500° F. in an amazingly short time. No separate air line is used.

Below are listed a few of the uses for which the Hi-Heat Gun is perfectly adapted:

Reducing grease in differentials and gear cases to thin oil.
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Many more uses will occur to the operator after becoming accustomed to its use.

In cold weather the Hi-Heat Gun is an indispensable part of service station equipment. Mail the coupon today for complete details.

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# Refinery - Tank Wagon Markets

## Oklahoma Bright Stocks Advance; Gasoline Prices Down

CLEVELAND Sept. 21

LUBRICATING oils continued their upward price trend in Oklahoma, domestic gasoline prices on the Pacific coast were improved, and burner oil prices in the mid-west were holding their own—these were the highlights of oil markets last week.

Mid-September doldrums ruled gasoline markets. Spot buying was light. Prices receded from .25 to .50 cent.

For the second consecutive week Oklahoma refiners manufacturing bright stocks advanced prices. Increases since Sept. 1 amount to 3 cents. Neutral oils in this district were increased .25 to .50 cent.

In western Pennsylvania small-lot orders ruled the buying of bright stock. Some price reduction was made in higher pour test stock with colder weather around the corner. Pennsylvania neutrals were active, and scarce.

Warmer weather blocked the demand for burner oils in mid-western markets. Prices were steady. Buyers in Chicago territory were having difficulty in finding zero straw gas oil, and 28-30 zero fuel oil, for prompt shipment.

Independent refiners on the Pacific coast advanced their spot gasoline prices 3 cents late in the week. Retail and wholesale prices were improved considerably in southern California.

Gasoline spot buying was light in all markets. Price reductions ranged from .125 to .25 cent in western Pennsylvania, .25 cent on the Eastern seaboard, to .375 to .50 cent in Chicago.

Texas was the low price center in the mid-west, while other territories were reducing at a slower pace. Selling of gasoline en route has cropped out again in this territory, and several sellers were caught with demurrage charges when orders did not materialize.

There was little distress gasoline in Oklahoma, Kansas, Louisiana or Arkansas, as prices dropped in sympathy with Texas.

Spot trading was light in all markets on the Eastern seaboard. The few buyers who entered the market found jobber-buyers had covered on gasoline for the balance of the month on August price levels.

Gulf markets were quiet. Routine demand was reported on domestic cargo business. Foreign buyers were out of the market. Export cargo inquiries were few in the Pacific coast market, and no spot sales were reported.

White crude scale wax was sold at 2 cents in New Orleans as traders jockeyed on prices. Fully refined wax was generally unchanged.

## Chicago Gasoline Prices Continue Downward

CHICAGO, Sept. 19

THE Chicago market was dull, and practically featureless, this week. Spot demand for gasoline was decidedly light in all quarters. Competition was keen for the small volume of business available. The result was a continuation of the downward movement of gasoline prices.

According to reports from the trade, no one district in the middle west was responsible for the past week's offerings of low-priced gasoline. Texas plants were said to be a step ahead of the others in the volume of cheap gasoline line that was being shoved on the market.

Gasoline prices generally were off 0.375 to 0.5 cent per gallon over the week. U. S. Motor on Sept. 19 stood at 2.875 to 3.25 cents. Carlot marketers reported paying 0.125 to 0.25 cent more for gasoline from Oklahoma refiners. Several Indiana-Illinois refiners, although not pushing their spot business, were making sales at prices in line with competition from other districts.

Kerosine was available at lower prices in most quarters. Sales of 41-43 w.w. were reported at 1.75 cents and up. Demand was light. Goods was freely available at the low price.

**Summary of Group 3 Quotations for U. S. Motor Gasoline, 437 E.P.**

In Effect Sept. 21

| | Cents per Gallon |
|---|---|
| Oklahoma | 2.875-3.25 |
| Kansas | 3.00 -3.375 |
| North Texas | 2.875-3.125 |
| West Texas | 2.875-3.125 |
| Louisiana-Arkansas | 3.00 |
| Indiana-Illinois | 2.875-3.25 |

Prices are those quoted on the basis of f.o.b. Group 3 by refiners in the districts designated.

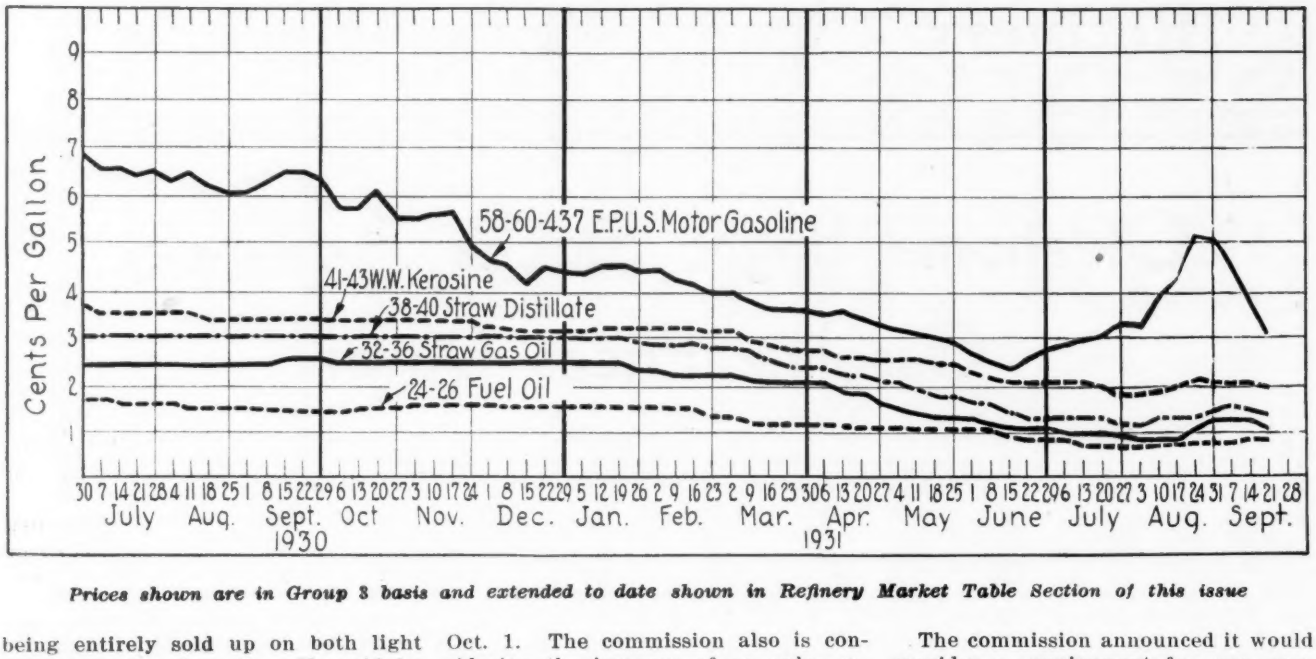
The only products in the list that held their own were the low cold test burning oils. These products, especially the 32-36 straw zero gas oil, and 28-30 zero fuel oil, were reported hard to obtain for prompt shipment. Demand was steady but not as good as it was earlier in the monh on account of warmer weather.

Several buyers reported they were having a hard time lining up gas oil for shipment over the winter. Distillates also were in good shape but on account of their being more freely offered, they were moving at the same prices as the better grades of gas oil.

Most of the low-priced distillate was coming from East Texas plants. Refiners there are unable to make low cold test gas oils with present equipment.

One Chicago district refiner reported

## Current Prices of Principal Mid-Continent Refined Products




*Prices shown are in Group 3 basis and extended to date shown in Refinery Market Table Section of this issue*

being entirely sold up on both light and heavy burning oils. He said he probably would not be able to make any open market offerings this winter.

## Oklahoma To Have Motor Fuel Specifications

TULSA, Sept. 19

Establishment of motor fuel specifications for Oklahoma is being considered by the Oklahoma Corporation Commission, and probably will be announced in the form of an order within the next few days.

The official specifications as now proposed would be similar to U. S. Government specifications for U. S. Motor grade, which become effective Oct. 1. The commission also is considering the issuance of an order requiring sellers of gasoline not meeting that specification to post a sign on the pumps to the effect the gasoline sold is of inferior quality.

The commission had a hearing on the matter at Oklahoma City Sept. 14, attended by interested parties representing both refiners and marketers. At that time the distillation range of the proposed specifications were outlined as follows:

At 167 F. not less than 10 per cent shall be evaporated.

At 284 F. not less than 50 per cent shall be evaporated.

At 392 F. not less than 90 per cent shall be evaporated.

End point shall not exceed 437 F.

Residue shall not exceed 2 per cent.

The commission announced it would consider a requirement for gum content, and would entertain a recommendation on this factor from a group of refinery technical men to determine the possibility of a practical rule which would not work an undue hardship on refiners.

## Shipments From Southern California

LOS ANGELES, Sept. 16.—Shipments of bulk petroleum from southern California ports to Foreign and Atlantic Seaboard ports totaled 1,144,659 barrels for week ended Sept. 12, as compared with 579,017 barrels shipped from the same ports a week ago. Destination and quantity of shipments were as follows:

| Destination | Crude | Gasoline | Diesel | Kerosine | Fuel | Total |
|---|---|---|---|---|---|---|
| Pacific For. | 124,534 | 221,278 | 109,281 | 8,410 | 326,917 | 790,420 |
| Atlantic Dom. | ..... | 273,190 | ..... | ..... | 81,049 | 354,239 |
| Atlantic For. | ..... | NONE | ..... | ..... | ..... | ..... |

## *Prices A Year Ago*

***Sept. 22, 1930***

| | Oklahoma | Penna. |
|---|---|---|
| 58-60 U. S. Motor Gasoline | 6.4687 | 6.50-7.00 |
| Grade A Natural Gasoline | 6.00 | ..... |
| Kerosine (Okla. 41-43; Pa. 47 w. w.) | 3.125-3.50 | 5.375-6.00 |
| Fuel Oil (Okla. 24-26; Pa. 36-40) | $0.575-$0.65 | 4.00-4.25 |
| Crude (Okla. 35-35.9) | $1.255 | $2.30 |
| Chicago tank wagon (including 3c tax) | | 18.00c |

## Gasoline Exemptions in Oklahoma up 8%

TULSA, Sept. 19.—Gasoline tax statistics for August, as announced by the Oklahoma Tax Commission, show that the total amount collected that month was $629,108.25. A year ago the total was $1,097,050.26, this was $467,942.01 more than in the same month this year.

Gasoline exempted totaled 6,251,776 gallons in August as compared with 4,528,000 gallons in August, 1930, an increase of 1,723,000 gallons this year.

The estimated consumption, based on the above figures, was 32,071,764 gallons in August, 1930, as compared with 28,457,721 gallons last August, a drop of 3,614,043 gallons.

The commission stated that the decrease in total collections was increased by the fact that tax paid for July changed on July 11 to a tax on gasoline sold instead of on shipments. Exempt gasoline was 14 per cent of the total last year, as compared with 22 per cent this year.

### Phillips Builds New Stations

BARTLESVILLE, Okla., Sept. 19.—Phillips Petroleum Co. has awarded a contract for the construction of six service stations in the Kansas City district to The Austin Co., Cleveland.

# Mid-Continent Refinery Markets

## Bright Stocks, Neutral Oil, Prices Advance

Staff Special
TULSA, Sept. 19

ADVANCES of 1 to 1.50 cents in bright stocks, and 0.25 to 0.50 cent in neutral oils prices furnished the feature in the Mid-Continent refinery markets the third week in September.

The advances in bright stock prices was the second in as many weeks and represents approximately a 3 cent advance since the first of the month.

The comparatively low stocks and the relative scarcity of crude in Oklahoma were two contributing factors in the advances. Another factor was the series of advances in Pennsylvania, which caused inquiries to become more numerous in this area.

Three Oklahoma refiners reported Sept. 19 that they had no material to offer on the open market. Another said he was making only enough to supply the demand from the retail division of his company, and still another said his price was purely nominal because of inability to obtain crude of sufficient quality to make any appreciable amount of the material at present.

Refiners who do not make lubricating oils found little of a cheering nature this week. Gasoline prices continued to slide downward, rapidly in some sections of the Mid-Continent, but more slowly in Oklahoma and Kansas.

Texas continued to be the price center. A few refiners in north and east Texas, and in the Amarillo district, failed to obtain spot orders in sufficient volume to keep their production moving satisfactorily, and repeated concessions were made in order to attract business.

Lower prices apparently was not the bait spot business was looking for as buying showed little increase over the week. Some gasoline, accordingly, was placed in transit in the hope that it could be sold en route and diverted, but several shippers reported a few cases of demurrage as orders failed to materialize.

The situation in Texas had its effect on the other Mid-Continent districts. Prices moved downward in sympathy with that district. There was little distress gasoline in Oklahoma, Kansas, Louisiana or Arkansas.

Natural gasolines continued on the downward trend the first part of the week as buying remained light. Some support was obtained late in the week when several sizeable orders were placed for delivery over the remainder of the month.

This buying was of sufficient volume to take the slack out of both the Oklahoma and Texas districts, and a few manufacturers late in the week were in the market for material to apply on their orders. The Standard Oil Co. of Indiana was one large buyer. At the same time several refiners in this area increased their taking from natural gasoline manufacturers.

Kerosine prices lost some ground. Refiners reported buying was comparatively light on the spot market. A majority of jobbers who supply the farming trade have bought their requirements in preparation for the fall plowing demand.

Distillates moved fairly well on contract but little spot buying was reported. Much of the goods moving at present apparently is going into storage until colder weather.

Several buyers reported difficulty obtaining zero gas oils in Oklahoma. The opening of the East Texas field was expected to react against the gas oil market generally but reports from that district indicated the amount of gas oil available was considerably lower than had been anticipated.

Ordinary gas oil suitable for cracking purposes was reported scarce for prompt shipment.

Fuel oils were generally unchanged in prices. Demand was steady most sellers reported. The higher cold test oils received a better play, particularly the zero cold test goods.

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**Pipeline Rate Digest Published**

WASHINGTON—A digest of pipeline rates on file with the Interstate Commerce Commission has been compiled by the Washington office of the National Petroleum Association and the Western Petroleum Refiners Association under the direction of Fayette B. Dow and Willis Crane.

These rates are shown for all pipelines in the country from point of origin to destination.

# Railroads Must Make New Oil Rates Effective Dec. 3

WASHINGTON, Sept. 21

THE Interstate Commerce Commission has set Dec. 3 as the day on which the railroads shall make effective, if they so desire, higher rates on petroleum and its products, in about half the country, geographically speaking. The only territories in which widely revised rates have not been prescribed are the mountain-Pacific and the western trunk line territories.

The railroads will have to make some reductions on that day whether they take the increases granted or not. About two-thirds of the tonnage of petroleum will be affected by the new rates.

A most unusual situation prevails with respect to the matter. The rates prescribed are what the regulating body calls maximum reasonable rates. Until a few years ago maximum reasonable rates usually meant reduced rates. That is not the fact with respect to the rates now. The cases in which the Dec. 3 rates were prescribed were initiated by the regulating body under a resolution of Congress (Hoch-Smith) directing it to readjust freight rates so as to make possible lower rates on products of agriculture. That resolution was adopted in 1925 and soon thereafter the proceedings which eventuated in the rates to be made operative Dec. 3 were started.

By the time the regulating body got together the rates it thought would give the railroads more money so that they could make lower rates for farm products, the motor truck had come along as a most serious competitor and pipelines to carry refined products were made possible by better welding processes.

Therefore, when, early this year the regulating body announced its decision about rates in the southwest, the southeast and the northeast it was obvious that if the railroads took all the decisions allowed them they would probably lose traffic. Since then the competition of the tank truck and the pipeline has become stronger than ever. Even early in the year it was so strong that Commissioner Eastman suggested that the permission given to raise rates was nothing more than a "benevolent gesture" toward the railroads. He pointed out that the rates prescribed by the Commission were maximum rates and that the carriers were not obligated to take the highest rates they were allowed to charge, if, for any reason they thought they could not get the business.

But failure to take the highest possible rates, on paper, creates the possibility of cases against the railroads

## Chicago Tank Car Market

CHICAGO, Sept. 19

GASOLINE prices drifted to lower levels in the week ended Sept. 19. Open market trading was extremely light, few sales being reported at any time during the week. Quotations at the end of the week were 0.375 to 0.5 cent lower than they were when the market opened Monday.

Kerosine trading was listless; prices continued to lose ground. Demand for burning oils was not as active as it had been the first week of September. Offerings were limited, however, and prices held their ground.

**Following prices represent majority of sales to jobbers on Group 3 freight basis, although shipments may originate in other refining districts, such as North, West and East Texas, Louisiana, Arkansas, Indiana, Illinois, Kentucky, etc.**

| | Prices Sept. 21 | Prices Sept. 14 | Prices Sept. 8 |
|---|---|---|---|
| 50-52, 437 e.p. naphtha | 2.75 – 3.00 | 3.50 – 3.75 | 4.25 – 4.50 |
| 58-60 U. S. Motor, 437 e.p. | 2.75 – 3.25 | 3.50 – 3.75 | 4.125– 4.50 |
| Anti-knock gasoline 60-69 Octane Number | 3.25 – 3.75 | 3.75 – 4.25 | 4.625– 5.00 |
| Anti-knock gasoline, 70 Octane Number and above | 4.00 – 4.375 | 4.50 – 5.00 | 5.25 – 5.75 |
| 60-62, 437 e.p. gasoline | 2.875– 3.375 | 3.50 – 4.00 | 4.25 – 4.75 |
| 60-62 400 e.p. gasoline | 3.125– 3.50 | 3.75 – 4.25 | 4.50 – 5.00 |
| 64-66 375 e.p. gasoline | 3.50 – 3.75 | 4.00 – 4.375 | 5.00 – 5.25 |
| 68-70 350-360 e.p. gasoline | 3.75 – 4.25 | 4.25 – 4.75 | 5.25 – 5.50 |
| *Domestic Aviation Gasoline | 4.75 – 5.25 | 6.00 – 6.50 | 7.00 – 7.25 |
| 41-43 w.w. kerosine | 1.75 – 1.875 | 1.875– 2.00 | 2.00 – 2.125 |
| 42-44 w.w. kerosine | 2.00 – 2.125 | 2.00 – 2.25 | 2.125– 2.375 |
| 38-40 p. w. distillate | 1.50 | 1.50 | 1.50 |
| 38-40 straw distillate | 1.375– 1.50 | 1.375– 1.50 | 1.375– 1.50 |
| 32-36 ordinary dark gas oil | 1.00 – 1.125 | 1.00 – 1.25 | †1.125– 1.25 |
| 32-36 dark zero gas oil | †1.375– 1.50 | †1.25 – 1.375 | †1.25 – 1.375 |
| 32-36 straw zero gas oil | 1.375– 1.50 | 1.375– 1.50 | 1.375– 1.50 |
| 28-30 zero fuel oil (per bbl.) | †$0.45 –$0.475 | †$0.425–$0.475 | †$0.425–$0.475 |
| 28-30 fuel oil (per bbl.) | $0.35 –$0.40 | $0.35 –$0.40 | $0.35 –$0.40 |
| 24-26 fuel oil (per bbl.) | $0.275–$0.30 | $0.275–$0.30 | $0.275–$0.30 |
| 18-22 fuel oil, (per bbl.) | $0.225–$0.25 | $0.225–$0.25 | $0.225–$0.25 |
| 18-22 zero fuel oil (per bbl.) | $0.25 –$0.30 | $0.25 –$0.30 | $0.25 –$0.30 |
| 14-16 fuel oil (per bbl.) | $0.20 –$0.225 | $0.20 –$0.225 | $0.20 –$0.225 |

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% recovery at 221°; 90% at 311°; 96% at 347°; end point 374° F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

†Nominal.

alleging favoritism in the form of taking the highest rates possible in some parts of the country, although they would be lower than the existing rates, but failing to take the highest in competing parts.

What the railroads are going to do about the matter has not been disclosed. They probably will take the highest rates and then cut those which it is shown will cause losses of business. Thereby the present conditions will be restored—if not made worse in the eyes of those who think that freight rates, to be lawful, must show graceful curves up and down instead of abrupt breaks where they are needed to accommodate the rate structure and actual business to each other.

Railroads in the northeast, last June, guessed they could get their schedules ready by Oct. 15 and that date was set. But they decided later that they could not get ready so soon. Therefore the rate body fixed Dec. 3, which is also the effective date of revised class rates to which petroleum rates in the northeastern part of the country, (east of the Mississippi and north of the Ohio and Potomac Rivers) are closely related. Railroads in the southwestern part of the country said they could not get their tariffs ready until Jan. 15 but the rate body nevertheless told them to get ready by Dec. 3.

## «Roulette» Gasoline Pumps Violation of Code

HOUSTON, Sept. 19.—The Texas American Petroleum Institute Code Committee has issued a letter to all dealers in the state calling attention to the fact that "roulette wheel" gasoline pumps are a violation of the code of marketing practices.

At several cities in the state pumps are used on which wheels have been attached near the visible globe. As gasoline passes through the pump the wheel turns. If the "marble" in the wheel stops on a red line the customer gets his gasoline free, otherwise he pays the regular price.

OCTANE number ratings as shown in NATIONAL PETROLEUM NEWS market tables are quoted on sellers' statements; tests are understood to be made according to the tentative standard method of test as adopted by the Detonation Subcommittee of the Co-operative Fuel Research Steering Committee, which were published in NATIONAL PETROLEUM NEWS for Aug. 5, 1931; also in the S. A. E. Journal, Aug., 1931.

### Canadian Production Rises

TORONTO—Production of crude in Canada in the first half of the year totaled 937,780 barrels, compared with 639,885 barrels in the first half of 1930.

Alberta produced 872,000 barrels the first half of this year, the Turner Valley field producing 826,835 barrels of this amount.

Ontario produced 62,070 barrels and New Brunswick 3,710 barrels.

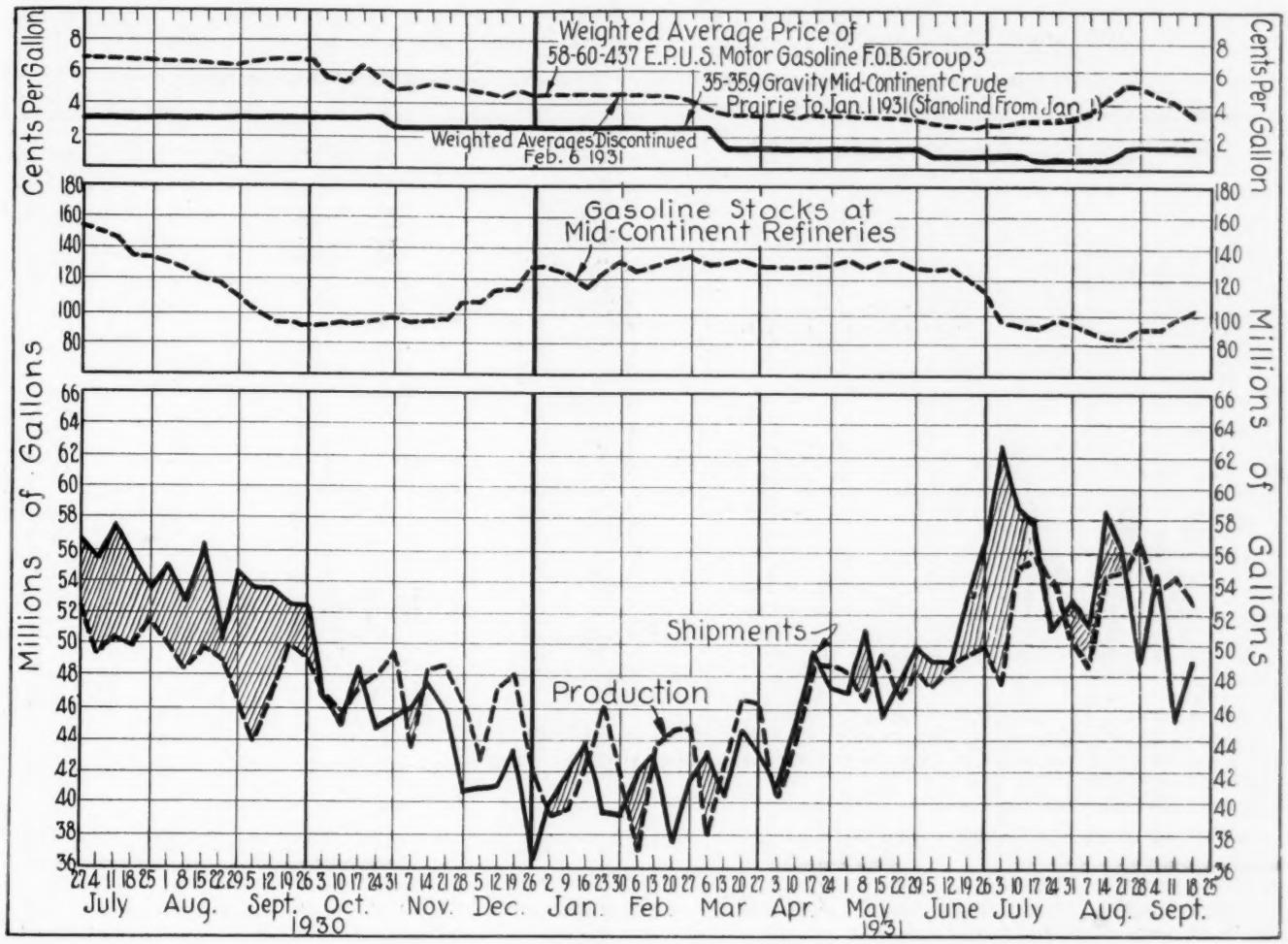
**A new automatic Toledo scale for** weighing contents of outgoing oil drums saved 50 gallons of oil in one day's shipment for the Fred G. Clark Co. at Minneapolis, according to the Sun Advertising Co. here.

The new weighing device was a Toledo scale, and replaced an old beam scale and measuring stick. It was purchased by the Clark company after search for efficient equipment for this work.

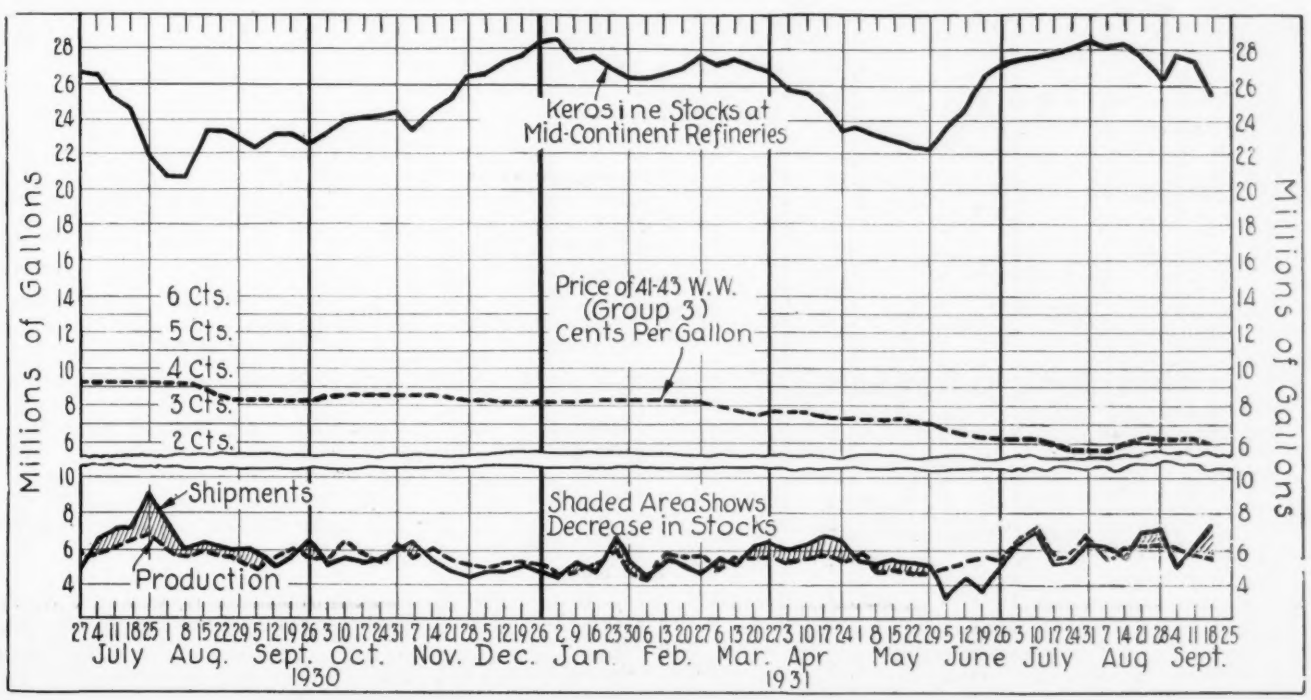
The first day the new scale was used, oil drum contents were weighed first with the beam scale and then with the new one, and the above mentioned saving was discovered, the Sun company says.

# Barometer of Mid-Continent Refinery Market—Week Ending September 18

***Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News***


Cents Per Gallon
Weighted Average Price of
58-60-437 E.P.U.S. Motor Gasoline F.O.B. Group 3
35-35.9 Gravity Mid-Continent Crude
Prairie to Jan. 1 1931 (Stanolind From Jan. 1)
Weighted Averages Discontinued
Feb. 6 1931
Gasoline Stocks at
Mid-Continent Refineries
Millions of Gallons
Shipments
Production
July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar Apr May June July Aug. Sept.
1930
1931

***Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 74***



# Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

*(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)*

## GASOLINE AND NAPHTHA

**OKLAHOMA** (F. o. b Oklahoma refineries)

| | Prices Sept. 21 | Prices Sept. 14 | Prices Sept. 8 |
|---|---|---|---|
| 48-50 450 e.p. naphtha... | †2.75 | †3.50 | †4.25 |
| 50-52 450 e.p. naphtha... | †2.75 | †3.50 | †4.25 |
| 56-58 450 e.p. gasoline... | †2.75 | †3.50 | †4.25 |
| 58-60 450 e.p. gasoline... | †2.75 | †3.50 | †4.25 |
| 58-60 U.S. Motor 437 e.p. | 2.875– 3.25 | 3.625– 4.125 | 4.25 – 4.75 |
| 60-62 437 e.p. gasoline... | 3.00 – 3.25 | 3.75 – 4.125 | 4.50 – 4.75 |
| 60-62 400 e.p. gasoline... | 3.25 – 3.50 | 3.875– 4.25 | 5.00 |
| 64-66 390 e.p. gasoline... | 3.50 – 3.75 | 4.125– 4.50 | 5.25 |
| 64-66 375 e.p. gasoline... | 3.75 – 4.00 | 4.25 – 4.75 | 5.375 |
| 68-70 350-360 e.p. gasoline | 4.00 – 4.25 | 4.625– 4.875 | 5.50 |
| ‡Domestic Aviation Gasoline | 5.25 – 5.50 | 6.25 – 6.50 | 7.00 – 7.25 |

‡Prices based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167° F., and not less than 122° F.; 50% rec. at 221°; 90% at 311°; 96% at 347°; end point, 374° F. Fighting grade in some instances sells at a premium over domestic aviation grade Prices represent majority of quotations.

**PENNSYLVANIA** (F. o. b. Western Pennsylvania refineries)

| | | | |
|---|---|---|---|
| 52-54 Naphtha | 4.75 – 5.00 | 4.75 – 5.00 | 4.75 – 5.00 |
| 54-56 Naphtha | 5.00 – 5.25 | 5.00 – 5.25 | 5.00 – 5.25 |
| 58-60 U.S. Motor 437 e.p. | 5.25 – 5.625 | 5.50 – 5.75 | 5.50 – 5.75 |
| 60-62 400-410 e.p. gasoline | 5.50 – 5.75 | 5.625– 5.875 | 5.625– 5.875 |
| 64-66 390 e.p. gasoline... | 5.75 – 6.00 | 6.00 – 6.25 | 6.00 – 6.25 |
| 68-70 350-360 e.p. | 6.00 – 6.50 | 6.00 – 6.50 | 6.00 – 6.50 |

**OHIO** (Quotations of S. O. Ohio. 4c state tax to be added.)

| | | | |
|---|---|---|---|
| **U. S. Motor Gasoline** | | | |
| Ohio, delivery at any point | 7.50 | 7.50 | 7.50 |

**KANSAS** (F. o. b. refinery Kansas destination)

| | | | |
|---|---|---|---|
| 58-60 U.S Motor 437 e.p. | 4.00 – 4.25 | 4.125– 4.75 | 4.75 – 5.00 |
| 60-62 437 e.p. gasoline... | 4.125– 4.375 | 4.50 – 5.00 | 5.00 |
| 60-62 400 e.p. gasoline... | 4.25 – 4.50 | 5.00 – 5.25 | 5.25 |
| 64-66 375 e.p. gasoline... | 4.375– 4.625 | 5.50 | 5.50 |

**NORTH TEXAS** (F. o. b. North Texas refineries)

| | | | |
|---|---|---|---|
| 56-58 450 e.p. gasoline... | †2.75 | †3.375– 3.50 | †4.00 |
| 58-60 450 e.p. gasoline... | †2.75 | †3.375– 3.50 | †4.00 |
| 58-60 U.S. Motor 437 e.p. | 2.875– 3.125 | 3.50 – 3.75 | 4.25 – 4.50 |
| 60-62 400 e.p. gasoline... | 3.125– 3.375 | †3.75 – 4.00 | †4.50 – 4.625 |
| 64-66 390 e.p. gasoline... | 3.25 – 3.50 | 4.00 – 4.25 | 4.875– 5.125 |
| 64-66 375 e.p. gasoline... | 3.375– 3.625 | 4.25 – 4.625 | †5.25 |
| 68-70 350-360 e.p. gasoline | 3.625– 3.875 | †4.50 – 4.75 | †5.50 |

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

| | | | |
|---|---|---|---|
| 50-52 naphtha | †2.875 | †3.25 | †3.25 – 3.625 |
| 58-60 437 e.p. gasoline... | 2.875 | †3.25 – 3.50 | †4.00 |
| 58-60 U.S. Motor 437 e.p. | 2.875– 3.125 | †3.50 – 3.75 | †4.25 – 4.50 |

**NORTH LOUISIANA** (N. La., Ark. and Miss. destination)

| | | | |
|---|---|---|---|
| 58-60 U.S. Motor 437 e.p. | 3.50 | 4.50 | 5.25 |

**ARKANSAS** (Ark., N. La. and Miss. destination)

| | | | |
|---|---|---|---|
| 58-60 U.S. Motor 437 e.p. | 3.50 | 4.50 | 5.25 |

**CALIFORNIA** (3c tax to be added to California gasoline prices if used in state.)

| | | | |
|---|---|---|---|
| 54-58 U.S. Motor 437 e.p. | 6.50 – 8.50 | 4.75 – 8.50 | 6.25 – 8.00 |
| 54-58 U.S. Motor, for outside state shipment | 5.00 – 6.00 | 5.00 – 6.00 | 5.75 – 7.25 |
| 58-61 375-400 e.p. gasoline | 9.00 –10.50 | 9.00 –10.50 | 9.00 –10.50 |
| 42-45 Engine Distillate 445-480 e.p. | 7.00 – 8.00 | 5.00 – 7.00 | 7.00 – 8.00 |

## NATURAL GASOLINE

(Note: End point of all grades, not over 375F. Corrosion test adopted Oct. 1, 1927; A.S.T.M. Method D130-27T; doctor test, July 2, 1928.)

**OKLAHOMA** (F. o. b. Oklahoma refineries)

| | | | |
|---|---|---|---|
| Grade AA, 80-87.9, 90% Recovery | †4.00 | †4.00 | †4.25 – 4.50 |
| Grade A, 72-79.9, 90% Recovery | †4.00 – 4.25 | †4.00 – 4.25 | †4.50 |
| Grade BB, 84-92, 85% Recovery | †4.00 | †4.00 | †4.00 – 4.25 |
| Grade B, 76-83.9, 85% Recovery | †4.00 | †4.00 | †4.00 – 4.25 |
| Grade C, 80-92, 78% Recovery | †4.00 | †4.00 | †4.00 – 4.25 |
| **(New Specifications)** | | | |
| Grade 26-70 | 4.00 | 4.00 | 4.25 – 4.50 |

**†Prices nominal ††Only one refiner quoting *Quotations only**

**NORTH TEXAS** (F. o. b. Breckenridge)

| | Prices Sept. 21 | Prices Sept. 14 | Prices Sept. 8 |
|---|---|---|---|
| Grade AA, 80-87.9, 90% Recovery | †3.75 | †3.75 | †4.00 – 4.25 |
| Grade A, 72-79.9, 90% Recovery | †3.75 – 3.875 | †3.75 – 4.00 | †4.25 |
| Grade BB, 84-92, 85% Recovery | †3.75 | †3.75 | †3.875– 4.125 |
| Grade B, 76-83.9, 85% Recovery | †3.75 | †3.75 | †3.875– 4.125 |
| Grade C, 80-92, 78% Recovery | †3.75 | †3.75 | †3.875– 4.125 |
| **(New Specifications)** | | | |
| Grade 26-70 | 3.75 | 3.75 | 4.00 – 4.25 |

**NORTH LOUISIANA** (F. o. b Monroe District)

| | | | |
|---|---|---|---|
| Grade AA | †4.00 | †4.00 | †4.25 |
| Grade BB | †3.75 – 4.00 | †3.75 – 4.00 | †4.00 |
| Grade C | †3.75 – 4.00 | †3.75 – 4.00 | †4.00 |

**CALIFORNIA** (F. o. b. California refineries)

| | | | |
|---|---|---|---|
| 75-85, 375-390 e.p. for blending | 4.50 – 5.50 | 4.50 – 5.50 | 4.50 – 5.50 |

## BURNING OILS

**PENNSYLVANIA** (F. o. b. Western Pennsylvania refineries)

| | | | |
|---|---|---|---|
| 45 w.w. kerosine | 3.50 – 3.75 | 3.50 – 3.75 | 3.50 – 3.75 |
| 46 w.w. kerosine | 3.625– 4.00 | 3.625– 4.00 | 3.625– 4.00 |
| 47 w.w. kerosine | 3.875– 4.25 | 3.875– 4.25 | 3.875– 4.25 |

**OKLAHOMA** (F. o. b. Oklahoma refineries)

| | | | |
|---|---|---|---|
| 41-43 w.w. kerosine | 1.875– 2.125 | 2.00 – 2.25 | 2.00 – 2.25 |
| 42-44 w.w. kerosine | 2.00 – 2.25 | 2.125– 2.375 | 2.125– 2.375 |

**KANSAS** (F. o. b. refinery Kansas destination)

| | | | |
|---|---|---|---|
| 41-43 w.w. kerosine | 2.25 – 2.375 | 2.25 – 2.50 | 2.25 – 2.50 |
| 42-44 w.w. kerosine | 2.375– 2.50 | 2.50 – 2.75 | 2.50 – 2.75 |

**NORTH TEXAS** (F. o. b. North Texas refineries)

| | | | |
|---|---|---|---|
| 40-42 w.w. kerosine | 1.75 – 1.875 | 1.875– 2.00 | 1.875– 2.00 |
| 41-43 w.w. kerosine | 1.875– 2.125 | 2.00 – 2.125 | 2.00 – 2.125 |

**NORTH LOUISIANA** (N. La., Ark. and Miss. dest'nation)

| | | | |
|---|---|---|---|
| 41-43 w.w. kerosine | 2.25 – 2.50 | 2.50 | 2.50 – 3.00 |

**ARKANSAS** (Ark., N. La. and Miss. destination)

| | | | |
|---|---|---|---|
| 41-43 w.w. kerosine | 2.25 – 2.50 | 2.50 | 2.50 – 3.00 |

**CALIFORNIA** (F. o. b. California refineries)

| | | | |
|---|---|---|---|
| 38-40 w.w. kerosine | 4.00 – 5.00 | 4.00 – 5.00 | 4.00 – 5.00 |

## NEUTRAL OIL

**PENNSYLVANIA** (F. o. b. Western Pennsylvania refineries)

| Vis. | (Viscosity at 70° F.) | | |
|---|---|---|---|
| 200 No. 3 color, 420-425 flash | 21.00 –22.00 | 21.00 –22.00 | 21.00 –21.50 |
| 180 No. 3 color, 410-415 flash | ..... | ..... | †19.00 |
| 150 No. 3 color, 400-405 flash | †17.50 –18.00 | †17.50 –18.00 | †16.50 –17.00 |

****MID-CONTINENT** (F. o. b. Mid-Continent refineries)

| Vis. Color | (Viscosity at 100° F.) | | |
|---|---|---|---|
| 100—No. 2 | 4.75 | 4.25 – 4.75 | 4.25 – 4.75 |
| 150—No. 3 | 6.75 – 7.00 | 6.00 – 6.25 | 6.00 – 6.25 |
| 150—No. 4 | 6.25 | 5.75 | 5.75 |
| 180—No. 3 | 8.75 | 8.00 | 8.00 |
| 180—No. 4 | 8.00 – 8.25 | 7.25 – 7.50 | 7.25 – 7.50 |
| 180—No. 5 | 7.50 | 7.00 | 7.00 |
| 200—No 3 | 9.25 – 9.75 | 8.50 | 8.50 |
| 200—No. 4 | 9.00 – 9.25 | 8.25 – 8.375 | 8.25 – 8.375 |
| 200—No. 5 | 8.50 – 8.75 | 8.00 – 8.25 | 8.00 – 8.25 |
| 220—No. 3 | 9.50 – 9.75 | 9.25 – 9.50 | 9.25 – 9.50 |
| 220—No. 4 | 9.00 | 8.75 | 8.75 |
| 220—No 5 | 8.50 | 8.25 | 8.25 |
| 240—No. 3 | 11.00 | 10.00 –10.50 | 10.00 –10.50 |
| 240—No. 4 | 10.25 | 9.50 –10.00 | 9.50 –10.00 |
| 240—No. 5 | 9.75 | 9.00 – 9.50 | 9.00 – 9.50 |
| 280—No. 3 | 12.00 | 11.75 | 11.75 |
| 280—No. 4 | 11.00 –11.25 | 10.75 –11.25 | 10.75 –11.25 |
| 280—No. 5 | 10.75 –11.00 | 10.00 –10.75 | 10.00 –10.75 |

Note: Quotations for 0 to 10 cold test neutral oils are ¼ to ½c higher depending on the grade.

****Prices represent Quotations and Sales.**

# Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

*(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)*

**GULF COASTAL** (F. o. b. Gulf Coastal refineries)

| Vis. Color | Prices Sept. 21 (Viscosity at 100° F., pour test 0) | Prices Sept. 14 | Prices Sept. 8 |
|---|---|---|---|
| 100—No. 2 Pale | 5.00 – 5.25 | 5.00 – 5.25 | 5.00 – 5.25 |
| 200—No. 3 Pale | 7.00 – 7.25 | 7.00 – 7.25 | 7.00 – 7.25 |
| 300—No. 3 Pale | 8.00 – 8.25 | 8.00 – 8.25 | 8.00 – 8.25 |
| 500—No. 3½ Pale | 9.00 – 9.25 | 9.00 – 9.25 | 9.00 – 9.25 |
| 750—No. 4 Pale | 10.00 –10.25 | 10.00 –10.25 | 10.00 –10.25 |
| 1200—No. 4 Pale | 12.00 –12.25 | 12.00 –12.25 | 12.00 –12.25 |
| 2000—No. 4-5 Pale | 13.00 –13.25 | 13.00 –13.25 | 13.00 –13.25 |
| 200—No. 5½ Red Oil | 6.00 – 6.25 | 6.00 – 6.25 | 6.00 – 6.25 |
| 300—No. 5½ Red Oil | 7.00 – 7.25 | 7.00 – 7.25 | 7.00 – 7.25 |
| 500—No. 6 Red Oil | 8.00 – 8.25 | 8.00 – 8.25 | 8.00 – 8.25 |
| 750—No. 6 Red Oil | 9.00 – 9.25 | 9.00 – 9.25 | 9.00 – 9.25 |
| 1200—No. 5-6 Red Oil | 11.00 –11.25 | 11.00 –11.25 | 11.00 –11.25 |
| 2000—No. 6 Plus Red Oil | 13.00 –13.25 | 13.00 –13.25 | 13.00 –13.25 |

**CALIFORNIA** (F. o. b. California refineries)

| Vis. Color | (Viscosity at 100° F.) | | |
|---|---|---|---|
| 100—No. 3 | 8.00 | 8.00 | 8.00 |
| 200—No. 3 | 10.00 | 10.00 | 10.00 |
| 300—No. 3 | 10.50 | 10.50 | 10.50 |
| 450—No. 3 | 12.00 | 12.00 | 12.00 |
| 550—No. 3 | 13.50 | 13.50 | 13.50 |
| 600—No. 3 | 13.50 | 13.50 | 13.50 |
| 200—No. 5 | 10.00 | 10.00 | 10.00 |
| 300—No. 5 | 10.50 | 10.50 | 10.50 |
| 400—No. 5 | 12.00 | 12.00 | 12.00 |
| 500—No. 5 | 13.00 | 13.00 | 13.00 |
| 600—No 5 | 13.50 | 13.50 | 13.50 |
| 700—No. 7 | 13.50 | 13.50 | 13.50 |

## CYLINDER STOCKS

**MID-CONTINENT** (F. o. b. Mid-Continent refineries)

**(Cylinder stock prices represent quotations and sales to domestic jobbers only).**

| | | | |
|---|---|---|---|
| 190-200 Vis. D at 210° Brt. St. | 20.50 | 20.50 | 19.00 |
| 150-160 Vis. D at 210° Brt. St., 0-10 cold test | 20.00 –20.50 | 18.50 | 17.00 |
| 150-160 Vis. D at 210° Brt. St., 10-25 cold test | 19.50 | 18.00 | 16.50 |
| 150-160 Vis. D Brt. Stock, 25-40 cold test | 18.50 –19.00 | 17.50 | 16.50 |
| 150-160 Vis. E 210° Brt. St. | 19.00 | 17.00 –17.50 | 15.50 –16.00 |
| 600 St. Ref. Olive Green | 5.50 – 6.50 | 6.00 – 7.00 | 5.00 – 6.00 |
| 600 St. Ref. Dark Green | 4.50 – 5.50 | 5.00 – 6.00 | 4.00 – 5.00 |
| Black Oil | 3.75 – 4.00 | 3.75 – 4.00 | 3.75 – 4.00 |

**PENNSYLVANIA** (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

| | | | |
|---|---|---|---|
| 600 Steam Refined, filterable | †14.00 –15.00 | †14.00 –15.00 | †13.50 –14.00 |
| 650 Steam Refined | †18.00 –19.00 | †18.00 –19.00 | †17.00 –18.00 |
| 600 Flash | †20.00 –21.50 | †20.00 –21.50 | †19.00 –21.00 |
| 630 Flash | 23.00 –25.00 | †22.00 –25.00 | †21.00 –25.00 |
| 600 Warren E | †18.50 –19.00 | †18.50 –19.00 | †18.50 –19.00 |
| Cold Test Stocks, 140-150 vis. at 210°, 540-550 flash, No. 8 color, 20 pour test and below | 30.00 –31.50 | 30.00 –31.50 | †30.00 –31.00 |
| No. 8 color, 25 and 35 pour test | 29.00 –31.00 | 30.00 –31.00 | 29.00 –30.00 |
| No. 8 color, 40 pour test and above | 29.00 –30.00 | 29.00 –30.00 | 28.00 –30.00 |

## WAX

**PENNSYLVANIA** (Per pound, F. o. b. New York)

| | | | |
|---|---|---|---|
| 122-124 white crude scale a.m.p. | 1.90 – 2.125 | 1.90 – 2.00 | 1.875– 2.00 |
| 124-126 white crude scale, a.m.p. | 1.90 – 2.125 | 1.90 – 2.00 | 1.875– 2.00 |

****OKLAHOMA** (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries.)

| | | | |
|---|---|---|---|
| 124-126 White Crude Scale, a.m.p. | 1.75 – 1.875 | 1.75 – 1.875 | 1.75 – 1.875 |

## DISTILLATE, GAS AND FUEL OIL

**PENNSYLVANIA** (For outside Pittsburgh district)

| | | | |
|---|---|---|---|
| 6-40 fuel oil | 2.75 – 3.125 | 2.75 – 3.00 | 2.875– 3.00 |

**†Prices nominal ††Only one refiner quoting *Quotations only**

**OKLAHOMA** (F. o. b. Oklahoma refineries)

| | Prices Sept. 21 | Prices Sept. 14 | Prices Sept. 8 |
|---|---|---|---|
| 38-40 straw distillate | 1.375– 1.50 | 1.50 | 1.50 |
| 36-38 straw distillate | †1.375 | †1.375 | †1.375 |
| 32-36 straw gas oil | 1.125– 1.25 | 1.25 | 1.25 – 1.375 |
| 32-36 straw gas oil zero | †1.50 – 1.625 | †1.50 – 1.625 | †1.50 – 1.625 |
| 32-36 dark gas oil | 1.00 – 1.25 | †1.125– 1.25 | †1.25 |
| 32-36 dark gas oil zero | †1.375– 1.50 | †1.375– 1.50 | †1.375– 1.50 |
| 28-30 zero fuel oil(per bbl.) | $0.45 –$0.475 | $0.425–$0.45 | $0.40 –$0.45 |
| 28-30 fuel oil (per bbl.) | $0.40 –$0.425 | $0.40 –$0.425 | $0.375–$0.40 |
| 26-28 fuel oil (per bbl.) | $0.375–$0.40 | $0.375–$0.40 | $0.35 –$0.375 |
| 24-26 fuel oil (per bbl.) | $0.325–$0.35 | $0.325–$0.35 | $0.30 –$0.325 |
| 22-26 fuel oil (per bbl.) | $0.275–$0.325 | $0.275–$0.325 | $0.25 –$0.30 |
| 18-22 fuel oil (per bbl.) | $0.25 –$0.275 | $0.25 –$0.275 | $0.25 –$0.275 |
| 16-20 fuel oil (per bbl.) | $0.225–$0.275 | $0.225–$0.275 | $0.225–$0.275 |
| 14-16 fuel oil (per bbl.) | $0.20 –$0.25 | $0.20 –$0.25 | $0.20 –$0.25 |

**KANSAS** (F. o. b. refinery Kansas destination)

| | | | |
|---|---|---|---|
| 38-40 straw distillate | 1.875– 2.00 | 1.875– 2.00 | 1.875– 2.00 |
| 36-38 straw distillate | 1.75 | 1.75 | 1.75 |
| 32-36 straw gas oil | 1.375– 1.50 | 1.375– 1.50 | 1.375– 1.50 |
| 18-22 fuel oil (per bbl.) | $0.325–$0.375 | $0.275–$0.375 | $0.275–$0.375 |
| 10-14 fuel oil (per bbl.) | $0.30 –$0.325 | $0.275–$0.325 | $0.275–$0.325 |

**NORTH TEXAS** (F. o. b. North Texas refineries)

| | | | |
|---|---|---|---|
| 38-40 straw distillate | 1.375– 1.50 | 1.375– 1.50 | 1.25 – 1.375 |
| 38-40 p.w.treated distillate | 1.50 | 1.50 | 1.50 |
| 32-36 gas oil, cracked | 1.125– 1.375 | 1.125– 1.375 | 1.125– 1.375 |
| 32-36 St. reduced gas oil | †1.125– 1.25 | †1.25 | †1.25 |
| 24-26 fuel oil (per bbl.) | $0.30 –$0.35 | $0.30 –$0.35 | $0.30 –$0.35 |
| 20-24 fuel oil (per bbl.) | $0.25 –$0.30 | $0.25 –$0.30 | $0.25 –$0.30 |
| 18-22 fuel oil (per bbl.) | $0.225–$0.25 | $0.225–$0.25 | $0.225–$0.25 |

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment

| | | | |
|---|---|---|---|
| 30-32 gas oil | 1.00 – 1.125 | 1.00 – 1.125 | 1.00 – 1.125 |
| 28-30 zero gas oil | 1.00 – 1.125 | 1.00 – 1.125 | 1.00 – 1.125 |
| 18-22 fuel oil (per bbl.) | $0.25 –$0.30 | $0.225–$0.25 | $0.225–$0.25 |

**NORTH LOUISIANA** (N. La., Ark. and Miss. destination)

| | | | |
|---|---|---|---|
| 32-36 gas oil, dark | 1.75 – 2.00 | 1.75 – 2.00 | 2.00 |
| 32-36 gas oil, straw | 1.75 – 2.00 | 1.75 – 2.00 | 2.00 |
| 14-16 fuel oil (per bbl.) | $0.40 –$0.475 | $0.40 –$0.50 | $0.55 –$0.60 |

**ARKANSAS** (Ark., N. La. and Miss. destination)

| | | | |
|---|---|---|---|
| 32-36 gas oil, straw | 1.75 – 2.00 | 1.75 – 2.00 | 2.00 |
| 32-36 dark gas oil | 1.75 – 2.00 | 1.75 – 2.00 | 2.00 |
| 28-30 gas oil | 1.75 | 1.75 | 1.75 |
| 20-24 fuel oil (per bbl.) | $0.50 –$0.575 | $0.50 –$0.60 | $0.60 –$0.675 |
| 9-12 fuel oil (per bbl.) | $0.35 –$0.425 | $0.35 –$0.45 | $0.45 –$0.50 |
| Black oil | 3.00 | 3.00 | 3.00 |

**CALIFORNIA** (F. o. b. San Joaquin Valley. Nominal pipe line charge to San Francisco 24c per bbl. more and to San Pedro 20c per bbl. more.)

| | | | |
|---|---|---|---|
| 14-18 fuel oil (per bbl.) | $0.40 –$0.55 | $0.40 –$0.55 | $0.40 –$0.55 |
| 14-18 Bunker oil (per bbl.) | $0.50 –$0.75 | $0.50 –$0.75 | $0.50 –$0.75 |
| 30-34 gas oil (per bbl.) | $0.75 –$0.85 | $0.65 –$0.85 | $0.65 –$0.85 |
| 27 Plus Diesel oil (per bbl.) | $0.75 –$0.85 | $0.65 –$0.85 | $0.65 –$0.85 |

## PETROLATUMS

**PENNSYLVANIA** (Per pound, in barrels, carload lots, f. o. b. Penna. refinery. In tank cars ½c to ¾c per pound less.) Two refiners quoting.

| | | | |
|---|---|---|---|
| Snow White | 6.125– 7.50 | 6.125– 7.00 | 6.125– 7.00 |
| Lily White | 5.125– 6.50 | 5.125– 6.00 | 5.125– 6.00 |
| Cream White | 4.125– 5.50 | 4.125– 5.00 | 4.125– 5.00 |
| Light Amber | 2.625– 3.25 | 2.625– 2.75 | 2.625– 2.75 |
| Amber | 2.375– 3.00 | 2.375– 2.50 | 2.375– 2.50 |
| Red | 2.00 – 2.75 | 1.875– 2.25 | 1.875– 2.25 |

## PETROLEUM COKE

****OKLAHOMA** (F. o. b. Oklahoma refineries)

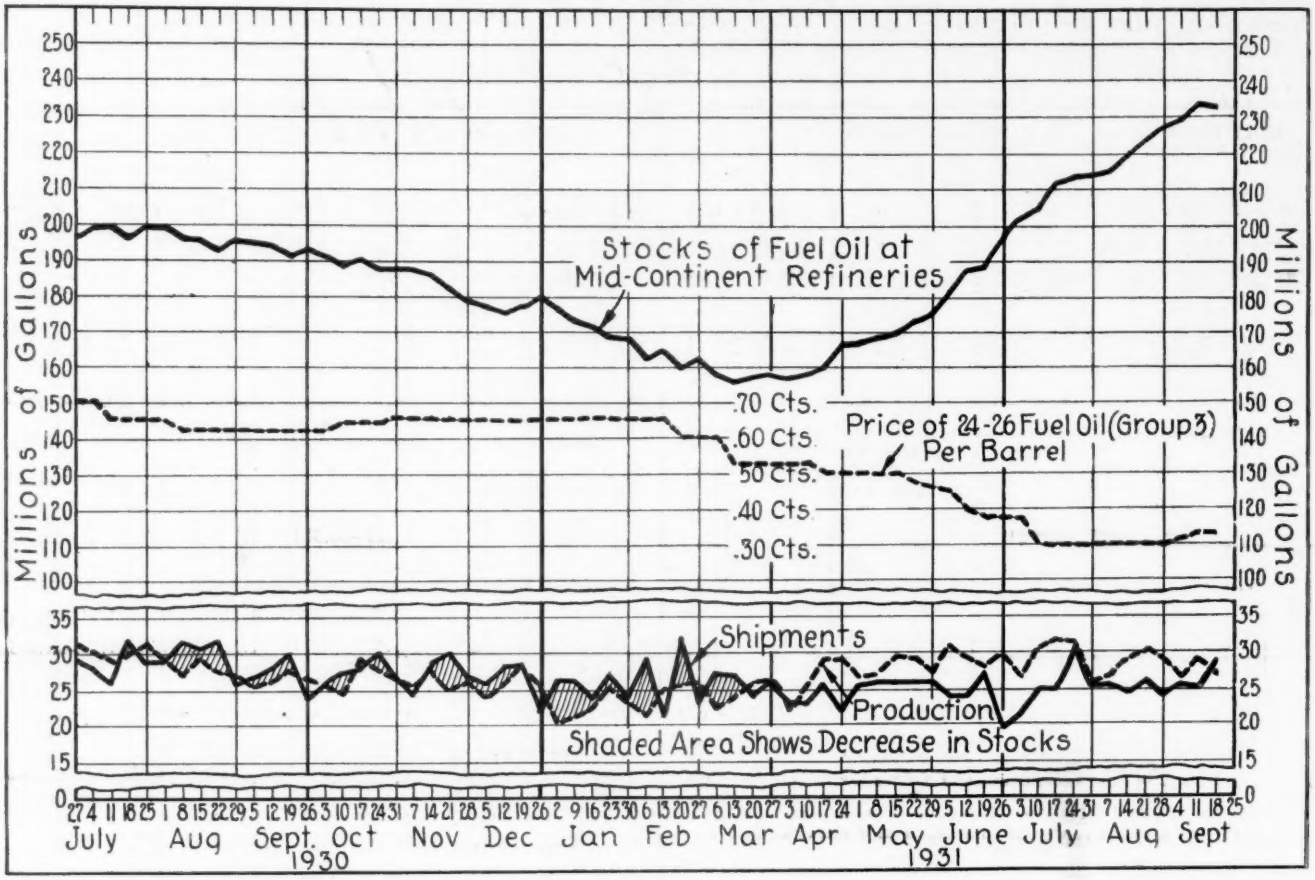
**(Per ton in car lots)**

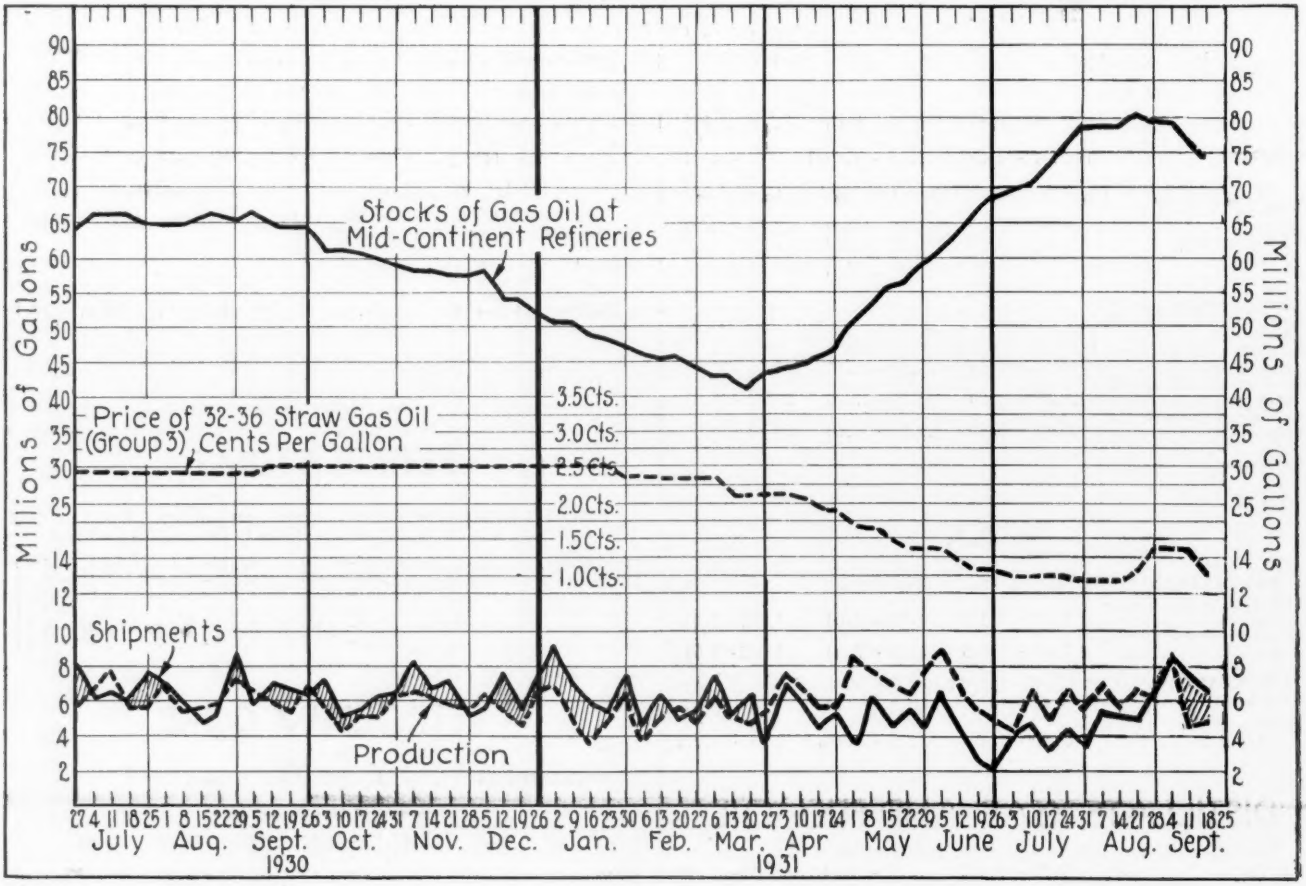
| | | | |
|---|---|---|---|
| Lump | $3.00 –$4.00 | $3.00 –$4.00 | $3.00 –$4.00 |
| Still run | $2.00 –$3.00 | $2.00 –$3.00 | $2.00 –$3.00 |
| Breeze | $0.75 –$1.50 | $0.75 –$1.50 | $0.75 –$1.50 |

****Prices represent Quotations and Sales**

# Barometer of Mid-Continent Refinery Market—Week Ending September 18

*Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News*



# An Economical and Efficient *New* CENTRAL LUBRICATING SYSTEM

*The* BALCRANK

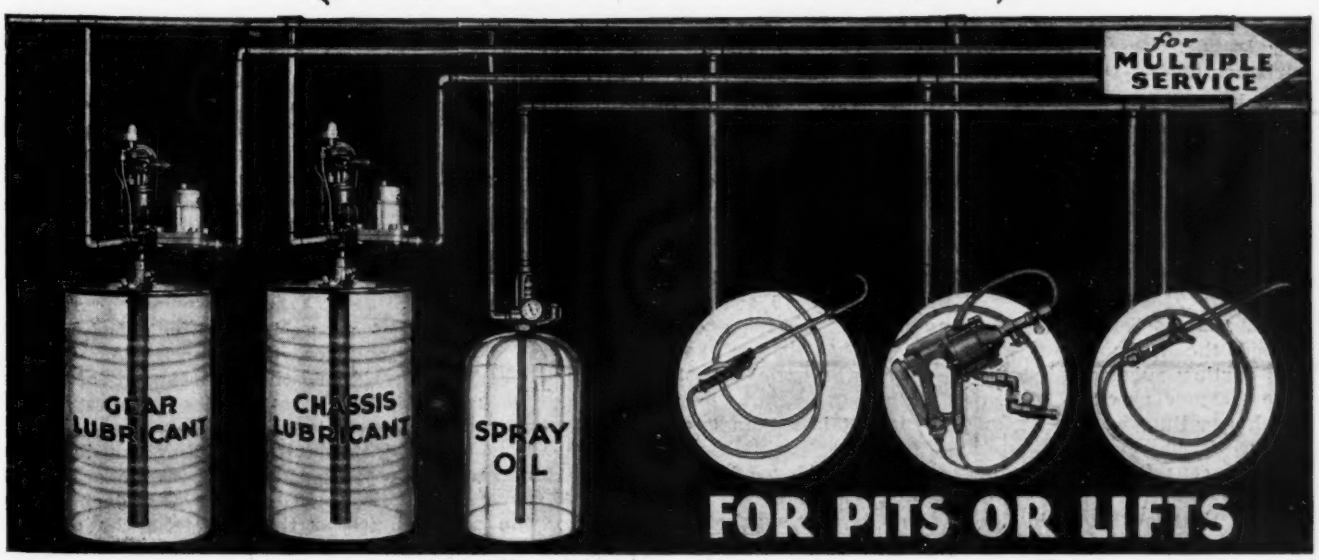
## DIRECT FROM THE ORIGINAL CONTAINER

# AIR-OPERATED BARREL PUMP

## FOR COMPLETE SUPER LUBRICATION

Complete super lubrication service combining chassis lubrication, gear lubrication, and oil spray outlets . . . dispensing gear and chassis lubricants direct from the original containers. Saves labor and waste caused by rehandling of lubricants—Serves either pits or lifts. This complete super service Balcrank installation needs but two Balcrank Barrel Pumps, one Balcrank Booster Gun, one Balcrank Gear Lubricant Nozzle, and one Balcrank Oiling Gun with tank. The original lubricant drums may be permanently located in any part of the station. When a drum is empty, simply release the Barrel Pump and clamp the new drum in its place, easily, quickly. The entire system is simplicity itself, and is efficient winter or summer. The LOWEST COST, most EFFICIENT installation for super-lubrication. Let us help you in planning your service —let us tell you more of the details of this new Balcrank installation.

*Use a Balcrank Air Compressor to make this system or any system more efficient.*




**THE CINCINNATI BALL CRANK COMPANY** **CINCINNATI, OHIO**

# California Refinery Market

## Domestic Gasoline Prices Improve

Staff Special
LOS ANGELES, Sept. 17

PACIFIC coast markets were featureless the past week. Inquiries for export cargo business were few and, no spot sales were reported.

Domestic retail and wholesale gasoline price conditions were considerably improved in the southern California district the past week when independent refiners initiated advances in tank car and tank truck and trailer quotations.

Members of the local export trade indicated that bulk U. S. Motor gasoline could be bought at 4 and 4.50 cents on a firm offer. They did not see any immediate business with East coast buyers.

Spot business was equally slack to Pacific foreign ports. There was a considerable quantity of goods shipped to company depots. The anticipated increase in heavy oil business has not materialized. Quotations remained unchanged.

Domestically, independent refiners advanced spot tank car and tank truck and trailer gasoline prices 3 cents late in the week. Several major refiners experimented with a second structure gasoline selling at prices competitive with the independent products.

Quotations at the end of the week were 10.50 to 11.50 cents on delivered gasoline, and 10 to 11.25 on tank car movement. A few independents continued to quote as low as 9.50 cents. These prices include state tax.

Retail gasoline prices, that had ranged at 10 to 16 cents showed a tendency to improve under the new quotations.

For movement into adjoining states, gasoline was still quoted at 5 to 6 cents. Demand was fair.

Except for gas oil, which showed a definite upward trend, quotations on other California commodities were practically unchanged. Gas oil was quoted at $0.75 to $0.85, for 32-35 gravity goods, up about 5 rents a barrel.

## Price Cutting Decreases as Third Grade Is Introduced at Richfield Stations

LOS ANGELES, Sept. 18

INTRODUCTION of a third grade gasoline in the Los Angeles marketing area, apparently by a major California refiner, was practically the only activity on the battle front of the Pacific Coast's latest price disturbance during the past week.

Richfield Oil Co. was generally credited with being the source of the "fighting" gasoline that was initiated in the Metropolitan area as a means of combatting the price-cutting independent refiner and dealer, which during the past two weeks sold gasoline in tank truck and trailer lots at 7.50 to 8 cents, delivered tax paid.

Although officials of the company denied the responsibility, the report was further substantiated by the fact that the new product, known as Blue Flash gasoline, went on sale early in the week only at stations handling 100 per cent Richfield products.

The competitive brand did not appear at all such Richfield dealers, but was confined to areas where price-cutting on independent products was most prevalent. It was sold from pumps painted blue, at prices ranging from 10 to 12.50 cents, depending upon neighborhood price conditions.

Late in the week, when most independent refiners, acting under the threat of this and possibly other third grade major gasolines, advanced tank truck and trailer delivery prices to 10.50 cents, tax included, retail prices on the new product moved up to 12.50 cents in nearly all cases.

Retail prices on most of the independent products advanced to approximately this same level and it was anticipated that over the week-end the average resale price would be 12.50 to 14.50 cents, excepting major products which are still sold at 16 cents.

As long as the independents hold the wholesale price at a level that does not permit their products to be sold at less than two to three cents under the established major price, it is not considered likely that the third grade gasoline will be pushed. A survey of major marketing companies the past week indicated that while a majority have contemplated introducing a fighting-brand gasoline, they will, for the present, maintain their air of watchful waiting in hopes that the independents will work out their own salvation.

Although a "Blue" gasoline is being sold at several stations handling Associated Oil Co. products in areas suburban to Los Angeles, it is understood that this product is being supplied by an outside refiner and that if the company does introduce a third gasoline, which it is reported ready and willing to do, the new product would be colored green, probably to harmonize with the company's color scheme of green, cream, and red.

Increased scarcity of refinable crude available to the independent refiner promises much in the way of stabilizing wholesale and retail gasoline prices. During the past week, the Oil Producers Sales Agency of California, was reported to have added some 2000 barrels of additional oil to its membership total.

Some growth in the membership of the agency was indicated by General Manager, Blodget, the past week when he announced that during the month of August approximately 3,500,000 barrels of crude oil had been sold through this marketing medium as compared with 3,275,000 barrels sold in July.

It was also expected by Mr. Blodget, that sales of crude oil by members through the agency during September will approximate 3,700,000 barrels, or 25.3 per cent of the state's total allowable production.

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**Quincy Compressor Co., Quincy, Ill.**, has published a bulletin on its new model GV-80 Quincy air compressor for super service stations particularly where higher pressures are desired.

It is a two-stage compressor with 80-gallon tank. Tests, the company says, have proven that it is able to maintain efficiently and economically constant adequate air supply at service stations operating outlets for tire inflation, lifts, grease guns and car washers.

It is efficient at recommended pressures of 200 pounds for continuous service and 350 pounds for intermittent service, the company says. Lubrication is by gear type oil pump. A special suction valve unloading mechanism for automatic pressure control permits the motor to start the compressor without any load. It is equipped with multiple Q-Vee belt drive.

---

**Gramm Motors, Inc., Delphos, O.** announces through B. A. Gramm, president, the installation of Visco-Meter as standard equipment on all Gramm trucks and buses.

This device indicates the degree of viscosity of the oil in the crankcase. It is tacked on to the dash and a glance at the dial tells the operator whether the oil is of right viscosity to protect the working parts at operating temperatures.

## Pennsylvania Markets

### Prices Generally Unchanged

CLEVELAND, Sept. 19.—There were few developments of outstanding interest in the western Pennsylvania refinery market this week. Demand for the majority of commodities was fairly steady. Prices showed little change.

Gasoline suffered more from receding demand than other commodities. Jobbers reduced their contract takings with the seasonal falling off in consumption and failure of the retail price situation to improve in Pennsylvania tended to further reduce the volume of open market buying.

The market was void of distress gasoline but several sellers reduced prices slightly in an effort to keep their production moving. Prices of all grades of gasoline were down 0.125 to 0.25 cent a gallon.

Kerosine and fuel oil demand held up fairly well and prices fluctuated little over the week.

Cylinder stocks remained tight, with prices largely nominal. Some grades advanced 0.25 to 0.5 cent, and the higher prices failed to release more liberal offerings from refiners.

Bright stock demand quieted down somewhat. Orders were coming in steadily for small lots, refiners said, but large-lot buying was not nearly as active as it had been during the two previous weeks. Prices for the higher pour test grades of bright stock receded slightly.

Neutral oils continued active with offerings relatively scarce. The 150 No. 3 color oil advanced 0.5 cent on the low end of the market.

Wax demand perked up and several refiners advanced prices 0.125 cent.

---

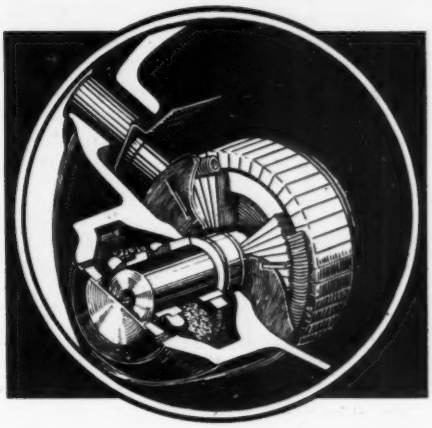
**The Ludlow multi-valve, by the Ludlow Valve Mfg. Co., Troy, N. Y., is designed to reduce to a minimum the erosive effect of high liquid and vapor velocities through the valve seat. It is described in Bulletin No. 101, "Power Plant Applications."**

**The new plug consists of a grooved frustum of a cone, the edges of the grooves being in the curved surface of the cone side. When the valve is opened, these grooves have the effect of a multiple reduction valve, the pressure being reduced gradually between each groove and the next, with the result that the fluid velocity is reduced across each groove edge, reducing or eliminating erosion, according to the manufacturers.**

**This valve is especially recommended for reduction of pressures of steam and other vapors where pressure differentials are high and erosion also high, where the nature of the work is such that small and narrow valve openings are necessary.**


# Leland Short Circuiting Efficiency

A vapor-resisting motor may be built ever so good in other features but, if equipped with an inferior short-circuiting device, it is still a poor motor.



The Leland short-circuiting device has established an enviable reputation for durability in many fields. There are, in the gasoline vending field alone, 300,000 of these units in use.

The construction is such that it has a high thermal capacity in its contacts, eliminating thereby the burning of the contact points. Uniform action of the sliding faces assure clean contact surfaces.

### Leland Field Service

Introduced in 1923, and the first successful gasoline vending motor ever built, the Leland has held the position of leader in this specialized service from that day to this. It stands to reason, therefore, that both the product and the servicing plan behind it must be highly satisfactory — everything that the most exacting or distant user could expect.

All required ratings in all type mountings, including vertical; A. C. Polyphase; A. C. Repulsion Induction; D. C. Compound Wound; Interchangeable frames.

**The Leland Electric Co.**
**Dayton · Ohio · U.S.A**

Canadian Address
Toronto

Cable Address
"Lelect Dayton"

**Leland Vapor-Resisting Motors**

# Eastern Domestic Markets

## Gasoline Prices Settled Back .25 Cent

Staff Special
NEW YORK, Sept. 19

GASOLINE markets along the eastern seaboard settled back a 0.25 cent this week.

Spot trading was light in all markets. Most jobber-buyers were covered for the balance of the month by purchases at August market levels. The new buyers who came into the current market found the supply of cheaper goods adequate to meet their demands.

A compartively few tank car buyers came into the market at New York harbor the past week. Spot sales were made early in the week at 6 cents for shipment into New York state. Pennsylvania buyers were hard to sell at that price. Gasoline with a 65 octane number and above sold for 5.75 cents for shipment into Pennsylvania, out of New York and Baltimore. Some goods having a lower octane rating was available at 5.50 cents f.o.b. New York harbor.

The Philadelphia market stood unchanged at 6 cents. There has been no change in tank wagon prices this week. The margin between wholesale and retail prices has been narrowed considerably. Accordingly, those buyers who have not stocked up at lower prices are now buying on a hand-to-mouth basis.

The Baltimore market showed the same symptoms as New York. The higher octane goods was available at 5.75 cents, and the lower octane gasoline was priced at 5.50 cents in most instances. A few cars of 58 octane gasoline were sold at 5.25 cents. One large buyer in western New York state was covered for the month at approximately 5.50 cents.

Spot activity was light in the New England markets. At Boston and Providence gasoline was quoted by most suppliers at 6.25 cents, but little business was placed on the books at that figure. A few sellers made sales at 6 cents in those markets. Demand was not brisk. The Portland market was quoted at 6.50 cents by all suppliers.

Heating oil prices were unchanged at New York and Boston. The season for these oils is not under way yet, but prices were reported steady at 3.50 cents for furnace oil. Grade C bunker oil remained steady at $0.70 a barrel and diesel oil at $1.40, in New York and Boston markets.

# Gulf Coast Markets

## Domestic Demand Follows Routine Lines

Staff Special
NEW YORK, Sept. 19

BULK markets at the Gulf lost ground during the week. Domestic demand for cargoes was along routine lines. Foreign buyers remained aloof.

Cargo lots of U. S. Motor gasoline were offered at 4.375 cents and the 64-66, 375 end point grade, at 4.75 cents. The intermediate grades were quoted at proportional prices. A distress cargo of 64-66, 375 end point gasoline, was offered slightly above 4 cents early in the week, but the offer was withdrawn shortly after.

Buying interest from abroad was nil. A cargo of gasoline was reported by London sources to be looking for a home at under 4 cents. At this writing confirmation of a sale at that price could not be obtained.

A distress cargo of bunker oil Grade C was sold in the New York market at slightly above $0.40 a barrel. This sale consisted of approximately 90,000 barrels. Another seller offered a cargo of the same oil at $0.43 per barrel.

The market for cased goods showed little improvement. Prices remained unchanged. West Indian buyers placed orders for 400 to 500 cases about evenly divided between gasoline and kerosine.

The gas oil market was featureless. Prices remained unchanged at 2.25 cents.

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### Gulf Lubes Unsettled

HOUSTON, Sept. 19.—Gulf Coastal lubricant manufacturers report unsettled conditions in the Houston district markets at unchanged price levels. Some inquiries are being made for winter contract requirements of jobbers. Cargo inquiries for export are at a minimum.

---

### New York Oil Men Dine Oct. 5

NEW YORK, Sept. 19.—The new Waldorf-Astoria will be the scene of the annual dinner Oct. 5 of the Oil Trades Association of New York, Inc., invitations recently mailed out announce.

This association, several years old, comprises members from every branch of the oil industry in New York City. Its summer activities are climaxed by a golf tournament, the latest of which was held Sept. 1 at the Pelham Country Club, and the fall season is ushered in by an annual dinner.

# Wax Markets

## New Orleans Price Advances

NEW YORK, Sept. 19.—Only slight changes were noted in New York and New Orleans wax markets this week Scale waxes were offered in New York at unchanged prices. In some quarters orders were taken at present prices for shipment over the balance of the year.

A mixed trend was noticeable in the New Orleans market. Some traders were undertaking to obtain lower prices for scale waxes. Sellers were countering with quotations around 2 cents for white scale. This price is fractionally higher than the level at which the mapority of sales have been made during the past few weeks. A few sales have been reported at 2 cents.

Prices for the fully refined grades were generally unchanged with the exception of the 135-137 A.m.p. grade which was offered an 0.125-cent lower. Foreign interest in this market was almost totally lacking.

---

General Motors Truck Co., Pontiac, Mich., has brought out a new low-priced truck in the 1½ to 2-ton class, powered with 6-cylinder, 60-horsepower motor, and priced at from $595 to $665.

It is model T-18. It is the lowest priced truck ever offered by General Motors. Two wheel bases, 131 and 157 inches, make possible 9 and 12 foot body lengths. Dual wheels are optional.

A complete line of bodies is offered in 12 optional colors. Protection against freezing is assured by the flat tube and fin type radiator, with the tubes expanding into cylindrical form instead of bursting should freezing occur.

## On The Lazy Bench

**"And He Raised the Ante"**

He was called "Alfalfa" Bill Murray,
And he caused quite a national flurry.
He said pay more for oil
Or I'll seal up the soil
And he called out the guard in a hurry.
*—Indiana Petroleum Marketer*

* * *

A man was buying a suitcase but none of those shown pleased him at all.

"When I buy a bag," he declared, "I like to see some cowhide in it."

"Oi," said the merchant, "you should want tricks. Am I a magician yet?"

* * *

The boat was sinking. The skipper rushed up to a crowd of scared passengers. "Who among you can pray?" he asked them.

"I can." answered a minister.

"Then pray, mister," ordered the skipper, "and the rest of you put on life preservers. We're one short."

*—Skelly News*
*Skelly Oil Co.*

* * *

The new member claims to be related to you and says he can prove it.

"The man's a fool."

"Yes, but that may be mere coincidence."

* * *

"Well," said the customs inspector at the Canadian border to the dusky driver of the ancient car. "Have you any dutiable stuff?"

"No, sah," said the dusky driver. "I got me a couple bottles o' gin, but that ain't no duty. 'At's a pleasure."

* * *

A sergeant was drilling the recruit squad in the use of the rifle. Everything went smoothly until blank cartridges were distributed.

The recruits were instructed to load their guns and stand "ready."

Then the sergeant gave the command: "Fire at will!"

One recruit lowered his gun.

"Which one is Will?" he asked.

*—The Gas Line*
*West Penn Oil Co.*

* * *

First Nut: Have you heard what the unemployed is doin' in the Oklahoma oil fields since they shut down?

Second Nut: No. What?

First Nut: Nothin'.

*—Gusherville News*
*Vickers Petroleum Co.*

* * *

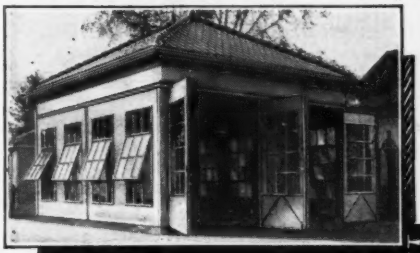
**A Puzzler**

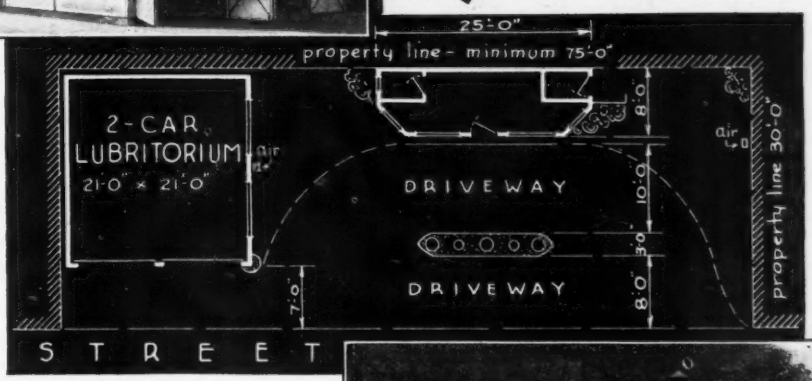
"I don't know how to fill out this question."

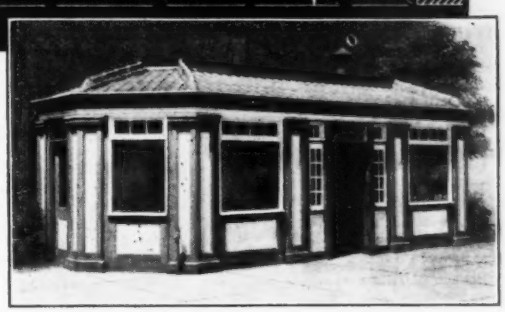
"What is it?"

"It says, 'Who was your mother before she was married?' and I didn't have any mother before she was married."


# From the word "GO," EDWARDS Filling Stations Pay DIVIDENDS





EDWARDS' Filling Stations go up like "greased lightning", fit into their surroundings like a setting; dominate day and night and "grow" as you expand, economically.

The above layout is a typical Edwards plan, with everything worked out scientifically for economy of time, space and investment.

Each Edwards Filling Station, Lubritorium, Parking Lot Office, etc. is an example of efficiency of design and construction, which have made them popular with the leaders of the industry for the past thirty years.

*Edwards Spanish Metal Tile is the crowning glory of more than half the distinctive service stations.*

This long and close association with the industry's problems has given us valuable facts and figures that may be helpful to you. Write, giving your lot dimensions and frontage.

THE EDWARDS MANUFACTURING CO.
524-544 Eggleston Ave. Cincinnati, Ohio

# PENNSYLVANIA
## MOTOR OILS
Buyers Specifications or Ours
Pennsylvania Quality at
Lowest Prices in Years
*Write or Wire*
**INDUSTRIAL OIL CORP.**
**Warren, Pa.**

# Complete Seaboard Market

*Export Markets for whole year given in OIL PRICE HANDBOOK. Each volume carries refinery, tank wagon, crude and export markets—complete for the whole year)*

## Eastern Domestic Market

**(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in Florida and South Carolina.)**

| | Prices Sept. 21 | Prices Sept. 14 | Prices Sept. 8 |
|---|---|---|---|
| **U. S. MOTOR GASOLINE, Below 65 Octane Number** | | | |
| New York Harbor | 5.50 – 5.75 | 5.75 – 6.00 | 5.50 – 5.75 |
| Philadelphia District | 6.00 | 6.00 | 5.50 – 5.75 |
| Baltimore District | 5.50 – 5.75 | 5.75 – 6.00 | 5.50 – 5.75 |
| **U. S. MOTOR GASOLINE, 65 Octane Number and Above** | | | |
| New York harbor | 5.75 – 6.00 | 6.00 | 5.75 – 6.00 |
| Portland district | 6.50 | 6.50 | 6.50 |
| Boston district | 6.00 – 6.25 | 6.25 | 6.25 |
| Providence district | 6.00 – 6.25 | 6.25 | 6.25 |
| Philadelphia district | 6.00 | 6.00 | 6.00 |
| Baltimore district | 5.75 – 6.00 | 6.00 | 6.00 |
| Norfolk district | 6.00 | 6.00 | 6.00 |
| Charleston district | 6.00 | 6.00 | 6.00 |
| Savannah district | 6.00 | 6.00 | 6.00 |
| Jacksonville district | 6.00 | 6.00 | 6.00 |
| **‡DOMESTIC AVIATION GASOLINE** | | | |
| New York harbor | 9.50 –12.00 | 9.50 –12.00 | 9.50 –12.00 |
| Philadelphia | 9.50 –12.00 | 9.50 –12.00 | 9.50 –12.00 |
| Baltimore | 11.00 –12.00 | 11.00 –12.00 | 11.00 –12.00 |
| Boston | 11.50 –13.00 | 11.50 –13.00 | 11.50 –13.00 |

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167°F. and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347° end point 374°F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

| | | | |
|---|---|---|---|
| **WATER WHITE KEROSINE** | | | |
| New York harbor | 4.75 – 5.00 | 4.75 – 5.00 | 4.75 – 5.00 |
| Philadelphia district | 4.75 – 5.00 | 4.75 – 5.00 | 4.75 – 5.00 |
| Baltimore district | 4.75 – 5.00 | 4.75 – 5.00 | 4.75 – 5.00 |
| **GAS OIL: 28-34 Gravity** | | | |
| New York harbor | 3.50 | 3.50 | 3.50 |
| Boston district | 3.75 | 3.75 | 3.75 |
| **FURNACE OIL: 36-40 Gravity** | | | |
| New York harbor | 4.50 | 4.50 | 4.50 |
| Boston district | 4.50 | 4.50 | 4.50 |
| **GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)** | | | |
| New York harbor | $0.70 | $0.70 | $0.70 |
| Boston district | $0.70 | $0.70 | $0.70 |
| **DIESEL OIL** | | | |
| New York harbor | $1.40 | $1.40 | $1.40 |

## New York Export Market

**(Lubricating oils are per gal. in bbls. F.a.s. New York)**

| | Sept. 21 | Sept. 14 | Sept. 8 |
|---|---|---|---|
| **CYLINDER OILS (Pennsylvania Products)** | | | |
| Bright stock, No. 8 color | 36.00 –36.50 | 35.50 –36.50 | 35.50 –36.00 |
| Bright stock, No. 6½ color diluted | 35.00 –35.50 | 34.50 –35.50 | 34.50 –35.00 |
| 600 D filtered | *29.00 | 28.00 –29.00 | 28.00 –29.00 |
| 600 Warren E filtered | 25.00 –26.00 | 25.00 –26.00 | 24.50 –25.50 |
| 600 stm. refd. unfiltered | 22.00 –25.00 | 20.00 –21.00 | 20.00 –21.00 |
| 650 stm. refd. unfiltered | 24.00 –25.00 | 23.00 –23.50 | 22.00 –23.50 |
| 600 flash steam refined | 25.00 –26.00 | 23.00 –24.00 | 22.50 –23.00 |
| 630 flash, steam refined | 28.25 –30.00 | 28.00 –30.00 | 26.00 –28.00 |
| *Nominal | | | |
| **RED PARAFFIN OILS (Vis. 100°)** | | | |
| 300 vis. No. 6½ color | 17.00 –20.00 | 17.00 –20.00 | 17.00 –20.00 |
| 250 vis. No. 6 color | 16.50 –17.50 | 16.50 –17.50 | 16.50 –17.50 |
| 200 vis. No. 6 color | 14.75 –17.00 | 14.75 –17.00 | 14.75 –17.00 |
| **PALE PARAFFIN OILS (Vis. 100°)** | | | |
| 230 vis. No. 3¾ color | 21.50 | 21.50 | 21.50 |
| 180 vis. No. 3¼ color | 18.00 –20.00 | 18.00 –20.00 | 18.00 –20.00 |
| 100 vis. No. 2¼ color | 12.50 –15.00 | 12.50 –15.00 | 12.50 –15.00 |

## Wax Market

**(Melting points are A.M.P. method. Prices in cents per pound, f.a.s. carload lots.)**

| NEW YORK | Sept. 21 | Sept. 14 | Sept. 8 |
|---|---|---|---|
| 124-126 Yellow crude scale | 1.80 – 1.85 | 1.80 – 1.85 | 1.80 – 1.85 |
| 122-124 White crude scale | 1.875– 1.90 | 1.875– 1.90 | 1.875– 1.90 |
| 124-126 White crude scale | 1.875– 1.90 | 1.875– 1.90 | 1.875– 1.90 |
| 123-125 Fully refined | 2.875– 3.00 | 2.875– 3.00 | 2.875– 3.00 |
| 125-127 Fully refined | 2.90 – 3.00 | 2.90 – 3.00 | 2.90 – 3.00 |
| 128-130 Fully refined | 3.00 – 3.125 | 3.00 – 3.125 | 3.00 – 3.125 |
| 130-132 Fully refined | 3.25 – 3.50 | 3.25 – 3.50 | 3.25 – 3.50 |
| 133-135 Fully refined | 4.25 – 4.375 | 4.25 – 4.375 | 4.25 – 4.375 |
| 135-137 Fully refined | 4.375– 4.50 | 4.50 – 4.625 | 4.50 – 4.625 |
| **NEW ORLEANS** | | | |
| 124-126 Yellow crude scale | 1.80 – 1.85 | 1.80 – 1.85 | 1.80 – 1.85 |
| 122-124 White crude scale | 1.875– 2.00 | 1.875– 1.90 | 1.875– 1.90 |
| 124-126 White crude scale | 1.875– 2.00 | 1.875– 1.90 | 1.875– 1.90 |
| 123-125 Fully refined | 2.875– 3.00 | 2.875– 3.00 | 2.875– 3.00 |
| 125-127 Fully refined | 2.90 – 3.00 | 2.90 – 3.00 | 2.90 – 3.00 |
| 128-130 Fully refined | 3.00 – 3.125 | 3.00 – 3.125 | 3.00 – 3.125 |
| 130-132 Fully refined | 3.25 – 3.50 | 3.25 – 3.50 | 3.25 – 3.50 |
| 133-135 Fully refined | 4.25 | 4.25 | 4.25 |

## Gulf Coast Bulk Market

**(Prices are f. o. b. Gulf oil terminals representing sellers' opinions covering bulk shipments of 20,000 barrels or more, for export and / or coastwise shipment unless otherwise noted.)**

| GASOLINE | Prices Sept. 21 | Prices Sept. 14 | Prices Sept. 8 |
|---|---|---|---|
| U. S. Motor | 4.375– 4.625 | 4.75 – 5.00 | *5.00 – 5.25 |
| 60-62, 400 e.p. | 4.50 – 4.75 | 4.875– 5.125 | *5.125– 5.375 |
| 61-63, 390 e.p. | 4.75 – 5.00 | *5.00 – 5.25 | *5.25 – 5.50 |
| 64-66, 375 e.p. | 4.75 – 5.00 | 4.75 – 5.00 | *5.50 |
| U. S. Motor, (cases cargoes) | $1.50 | $1.50 | $1.50 |
| 64-66, cases (cargoes) | $1.60 | $1.60 | $1.60 |
| *Nominal. | | | |
| **KEROSINE** | | | |
| 44 water white | 3.75 – 4.00 | 3.75 – 4.00 | 3.75 – 4.00 |
| 41-43 prime white | 3.25 – 3.50 | 3.25 – 3.50 | 3.25 – 3.50 |
| Water white, cases (cargoes) | $1.40 | $1.40 | $1.40 |
| Prime white, cases (cargoes) | $1.30 | $1.3 | $1.30 |
| **GAS & BUNKER OILS** | | | |
| *26-30 translucent gas oil | 2.25 – 2.50 | 2.25 – 2.50 | 2.25 – 2.50 |
| *30 plus translucent gas oil | 2.25 – 2.50 | 2.25 – 2.50 | 2.25 – 2.50 |
| Grade C bunker oil, for ships' bunkers, per bbl. | $0.55 | $0.55 | $0.55 |
| Grade C bunker oil, per bbl. in cargoes | $0.40 –$0.45 | $0.45 –$0.50 | $0.45 –$0.50 |
| *Less than ½ of 1% sulphur. | | | |
| **MEXICAN CRUDE AND BUNKER OILS (f. o. b. Steamer, Tampico)** | | | |
| Heavy Panuco crude taxes to be paid, per bbl. | $0.45 | $0.45 | $0.45 |
| Grade C bunker oil for bunkering, taxes paid, per bbl. | $0.60 | $0.60 | $0.60 |
| **SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0 Tanker, f. o. b. Gulf oil terminals.)** | | | |
| 100 vis. No. 2 unfiltered pale | 4.375– 5.00 | 4.375– 5.00 | 4.375– 5.00 |
| 200 vis. No. 3 unfiltered pale | 6.00 – 7.00 | 6.00 – 7.00 | 6.00 – 7.00 |
| 300 vis. No. 3 unfiltered pale | 7.625– 8.00 | 7.625– 8.00 | 7.625– 8.00 |
| 500 vis. No. 3½ unfiltered pale | 8.25 – 9.00 | 8.25 – 9.00 | 8.25 – 9.00 |
| 750 vis. No. 4 unfiltered pale | 9.25 –10.00 | 9.25 –10.00 | 9.25 –10.00 |
| 1200 vis. No. 4 unfiltered pale | 12.00 –13.00 | 12.00 –13.00 | 12.00 –13.00 |
| 200 vis. No. 5-6 red oil | 5.25 – 6.00 | 5.25 – 6.00 | 5.25 – 6.00 |
| 300 vis. No. 5-6 red oil | 6.25 – 7.00 | 6.25 – 7.00 | 6.25 – 7.00 |
| 500 vis. No. 5-6 red oil | 7.25 – 8.00 | 7.25 – 8.00 | 7.25 – 8.00 |
| 750 vis. No. 5-6 red oil | 8.25 – 9.00 | 8.25 – 9.00 | 8.25 – 9.00 |
| 1200 vis. No. 5-6 red oil | 13.25 –13.75 | 13.25 –13.75 | 11.00 –12.50 |

## Pacific Export Market

**(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)**

| | Sept. 21 | Sept. 14 | Sept. 8 |
|---|---|---|---|
| Gasoline, U. S. Motor, 53-55 Gravity | 4.25 – 5.00 | 4.25 – 5.00 | 4.375– 5.00 |
| Gasoline, U. S. Motor-blends and special cuts | 4.50 – 5.25 | 4.50 – 5.25 | 4.50 – 5.25 |
| Gasoline, 400 e.p. blend | 4.75 – 5.50 | 4.75 – 5.50 | 5.00 – 5.50 |
| Gas oil, 30-34 per bbl. | $0.85 –$0.90 | $0.85 –$0.90 | $0.85 –$0.90 |
| Diesel Oil, 27 plus, per bbl. | $0.85 –$0.90 | $0.85 –$0.90 | $0.85 –$0.90 |
| Bunker oil, 14-18 per bbl. | $0.55 –$0.70 | $0.55 –$0.70 | $0.55 –$0.70 |
| Fuel oil, 14-18 per bbl. | $0.55 –$0.80 | $0.55 –$0.80 | $0.55 –$0.80 |
| Kerosine, 38-40 w.w., 125-150 flash, per gal. | 4.25 – 4.75 | 4.25 – 4.75 | 4.25 – 4.75 |
| **Cased Goods** | | | |
| Gasoline, U. S. Motor | $1.45 –$1.55 | $1.45 –$1.55 | $1.45 –$1.55 |
| Gasoline, 400 e.p. blend | $1.55 –$1.65 | $1.55 –$1.65 | $1.55 –$1.65 |
| Kerosine, 38-40 w.w., 125-150 flash | $1.40 –$1.45 | $1.40 –$1.45 | $1.40 –$1.45 |

## Tanker Rates

**(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling; to American ports, cents per barrel.)**

| | Sept. 21 | |
|---|---|---|
| | Crude &/or Fuel | Refined Oil &/or Spirits |
| Calif. to U. K. or Continental ports* | †15 | ††15 |
| Gulf to U. K. or Continental ports* | 9 | 9 |
| North Atlantic to U. K. or Continental ports* | 7/6 | 7/6 |
| Calif. to North Atlantic ports (not E. of N.Y.) | $0.45-$0.47 | $0.45-$0.47 |
| Gulf to North Atlantic ports (not E. of N. Y.)** | 14-15 | 15 |

*Continental ports in the range between Bordeaux and Hamburg, both inclusive. **Venezuela loading same rate, for Tampico 2c to 3c per bbl. additional. †Last paid 12/6; owners ask 15. ††Last paid 11/6; owners ask 15.

# SKILLED SUPERVISION

## *Guarantees the Quality of Gulf Products*

COASTAL AND PARAFFINE CRUDES
GASOLINE—LUBRICATING OILS
NAPHTHA—GAS—OILS
WAX—PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

## Gulf Refining Company

*General Sales Offices:*
PITTSBURGH, PA.

*District Sales Offices:* New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

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*FROM ALL SHIPPING POINTS:*

CRUDE OIL

Gasoline—Kerosene—Distillates—Furnace Oil
Painters and Cleaners Napthas—Natural Gasoline
Coastal Lubricating Oils—Bright Stocks—Neutral
Asphalt—Road Oil—Flux Oil—Petroleum Coke.

*One Car or One Train—Wire, Write, Telephone*

## PRIMROSE PETROLEUM CO., INC.

*(Incorporated under the Laws of the State of Texas, 1916)*
DALLAS, TEXAS

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# *QUICK ACCURATE* Tire Inflation

—that's what pleases the service-station patron. Snap the Schrader Chuck Gauge onto the valve stem—read the gauge—pull the trigger—read the gauge . . . and the correct amount of air is in the tire in a jiffy. No repeated disconnecting and testing. No fiddling and fumbling. No squatting. No delicate, complicated mechanism to get out of order or become affected by weather or shocks.

Gasoline distributors operating service stations will do well to investigate and install this extraordinary good-will builder. Order through your regular source of supply, or for further details write direct to A. Schrader's Son, Inc., Brooklyn, N.Y.

## Schrader

Reg. U.S. Pat. Off.

## CHUCK GAUGE

No. 6513

**1.** Positive Schrader Trigger Action controls flow of air from tank to tire.

**2.** Accurate, easily read Schrader Direct-action Gauge tells exact air pressure in tire. Calibrations in one-pound units from 15 to 70 lbs.

**3.** Handy Schrader Deflator Button releases or reduces air when desired.

**4.** Specially designed Schrader Chuck Clip holds chuck firmly on valve stem during process of inflation.

***Be sure it's a Schrader—look for the name.***

# Tank Wagon, Service Station Markets for Gasoline and Kerosine

***(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)***

These Prices in Effect September 21, 1931, as Posted by Principal Marketing Companies

## Latest Changes in Tank Wagon Prices

**Gasoline**

**S. O. New Jersey**—Correction: S.s. price at Salisbury advanced 1.7c, Sept 5, to 19.7c, instead of 1c as reported in Sept. 9 issue, Page 84.

T.w. and s.s. cut 1c, Charlotte, to 17.5c and 18.5c respectively including 6c tax, **Sept. 15;** s.s. only cut 1c, to 17.5c, **Sept. 17.**

**S. O. New York**—T.w. only cut 1c, Rochester, to 13c, including 2c tax, **Sept. 4.**

**Atlantic Refining**—T.w. and s.s. cut 6/10c, Providence, to 12.1c and 13.1c respectively, including 2c tax, **Sept. 5.**

**S. O. Ohio**—S.s. only cut 1c thru Greene county, to 16c including 4c tax, **Sept. 16.**

T.w. and s.s. cut 1c, thru Montgomery county, both to 15c including 4c tax, **Sept. 16.**

**S. O. Kentucky**—In the general 1 cent advance, Sept. 4, thru territory, these points were exceptions: Lexington s.s. unchanged; Paducah t.w. up 2c; Vicksburg, Birmingham, Mobile, Atlanta and Macon t.w. and s.s. up 3c; Montgomery and Jacksonville t.w. and s.s. up 2c; Miami s.s. and Tampa t.w. unchanged.

S.s. only up 1c, Lexington, to 19c, **Sept. 9.**

T.w. and s.s. cut 1c, Birmingham, both to 17c, including 5c state tax and 1c city tax, **Sept. 12.**

T.w. and s.s. cut 2c, Tampa, both to 16c, including 7c tax, **Sept. 8.**

T.w. and s.s. cut 2c, Savannah, both to 17c, including 6c tax, **Sept. 16.**

**S. O. Louisiana**—T.w. and s.s. cut 1c, New Orleans, both to 14.5c including 6c tax, **Sept. 12.**

T.w. cut ½c, s.s. cut 1.5c, Bristol , both to 19c, including 6c tax, **Sept. 12;** t.w. only cut 1c to 18c, **Sept. 15.**

**Magnolia Petroleum**—T.w. and s.s. up 1c, Muskogee, to 12c and 14c respectively, including 5c tax, **Aug. 28.**

T.w. and s.s. up 2c, Ft. Smith, to 16.5c and 17.5c respectively, including 5c tax, **Sept. 8.**

T.w. and s.s. up 1.5c, Little Rock, to 17.5c and 18.5c respectively, including 6c tax, **Sept. 8.**

**Kerosine**

**S. O. New Jersey**—Kerosine cut 1c, Baltimore, to 8.5c, **Sept. 18.**

**Atlantic Refining**—Kerosine up 1c, Camden, Atlantic City, Trenton, Baltimore, Annapolis, Hagerstown, Richmond, and Wilmington, **Sept. 14.**

**S. O. New York**—Kerosine cut 1c, New York City and New Haven, both to 9c t.w., **Aug. 27.**

Kerosine cut 2.3c, Augusta, to 10.5c t.w., **Sept. 9.**

## S.O. NEW JERSEY TERRITORY

| | Gasoline Total | | | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Atlantic City, N. J. | 11.7 | 3 | 14.7 | 15.7 | 11.5 |
| Newark, N. J. | 10.7 | 3 | 13.7 | 14.7 | 10.5 |
| Annapolis, Md. | 11.2 | 4 | 15.2 | 16.2 | 11 |
| Baltimore, Md. | 10.4 | 4 | 14.4 | 15.4 | 8.5 |
| Cumberland, Md. | 12.2 | 4 | 16.2 | 17.2 | 12 |
| Washington, D. C. | 10.9 | 2 | 12.9 | 13.9 | 10.7 |
| Danville, Va. | 12 | 5 | 17 | 18 | 11.8 |
| Norfolk, Va. | 10.5 | 5 | 15.5 | 16.5 | 10 |
| Petersburg, Va. | 11.5 | 5 | 16.5 | 17.5 | 11.3 |
| Richmond, Va. | 10.9 | 5 | 15.9 | 16.9 | 10.7 |
| Roanoke, Va. | 12.2 | 5 | 17.2 | 18.2 | 12 |
| Charleston, W. Va. | 11.7 | 4 | 15.7 | 16.7 | 11.5 |
| Keyser, W. Va. | 12.3 | 4 | 16.3 | 17.3 | 12.1 |
| Parkersburg, W. Va. | 10.4 | 4 | 14.4 | 15.4 | 10.2 |
| Wheeling, W. Va. | 11.6 | 4 | 15.6 | 16.6 | 11.4 |
| Charlotte, N. C. | 11.5 | 6 | 17.5 | 17.5 | 12.3 |
| Hickory, N. C. | 12.8 | 6 | 18.8 | 19.8 | 12.6 |
| Mt. Airy, N. C. | 12.7 | 6 | 18.7 | 19.7 | 12.5 |
| Raleigh, N. C. | 12.4 | 6 | 18.4 | 19.4 | 12.2 |
| Salisbury, N. C. | 12.7 | 6 | 18.7 | 19.7 | 12.5 |
| Charleston, S. C. | 10.5 | 6 | 16.5 | 17.5 | 10.3 |
| Columbia, S. C. | 12.4 | 6 | 18.4 | 19.4 | 12.2 |
| Spartanburg, S. C. | 12.7 | 6 | 18.7 | 19.7 | 12.5 |

**Note: 2c per gallon discount off retail t.w. price of gasoline to dealers thru S. O. New Jersey territory, except Maryland, New Jersey and Washington, D. C. where discount is 3c.**

## S. O. NEW YORK

| | Gasoline Total | | | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W |
| Greater New York City: Boroughs of Manhattan, Bronx, Queens & Kings | 12.3 | 2 | 14.3 | 16.3 | 9 |
| Borough of Richmond | 12.7 | 2 | 14.7 | 16.7 | 11 |
| Albany, N. Y. | 10.6 | 2 | 12.6 | 13.6 | 10.5 |
| Buffalo, N. Y. | 10 | 2 | 12 | 12 | 10 |
| Rochester, N. Y. | 11 | 2 | 13 | 14 | 10 |
| Syracuse, N. Y. | 10 | 2 | 12 | 13 | 9.5 |
| Boston, Mass. | 10.5 | 3 | 13.5 | 14.5 | 10 |
| Augusta, Me. | 12.8 | 4 | 16.8 | 17.8 | 10.5 |
| Manchester, N. H. | 11.4 | 4 | 15.4 | 16.4 | 10 |
| Burlington, Vt. | 13.3 | 4 | 17.3 | 17.3 | 11 |
| New Haven, Conn. | 12.6 | 2 | 14.6 | 15.6 | 9 |
| Providence, R. I. | 10.1 | 2 | 12.1 | 13.1 | 10 |

**Discounts** on gasoline: 2c per gal. off posted t.w. price to dealers, thru territory, except 3c to dealers in New York City, effective Feb. 20, 1931.

## ATLANTIC REFINING

| | | | | | |
|---|---|---|---|---|---|
| Pittsburgh, Pa. | 10 | 3 | 13 | 14 | 11 |
| Philadelphia, Pa. | 10 | 3 | 13 | 14 | 11 |
| Allentown, Pa. | 10 | 3 | 13 | 14 | 11 |
| Erie, Pa. | 10 | 3 | 13 | 14 | 11 |

## ATLANTIC REFINING — (*Continued*)

| | Gasoline Total | | | | Oil |
|---|---|---|---|---|---|
| | T.W. | Tax | T.W. | S.S. | T.W. |
| Scranton, Pa. | 10 | 3 | 13 | 14 | 11 |
| Altoona, Pa. | 10 | 3 | 13 | 14 | 11 |
| Dover, Del. | 10 | 3 | 13 | 14 | 11 |
| Wilmington, Del. | 10 | 3 | 13 | 14 | 11 |
| Boston, Mass. | 10.5 | 3 | 13.5 | 14.5 | 10 |
| Springfield, Mass. | 11.5 | 3 | 14.5 | 15.5 | 10 |
| Worcester, Mass. | 11.3 | 3 | 14.3 | 15.3 | 10 |
| Fall River, Mass. | 11.1 | 3 | 14.1 | 15.1 | 10 |
| Providenc, R. I. | 10.1 | 2 | 12.1 | 13.1 | 10 |
| Hartford, Conn. | 12.5 | 2 | 14.5 | 15.5 | 10 |
| New Haven, Conn. | 12.6 | 2 | 14.6 | 15.6 | 10 |
| Atlantic City, N. J. | 11.7 | 3 | 14.7 | 15.7 | 11.5 |
| Camden, N. J. | 10.8 | 3 | 13.8 | 14.8 | 10.6 |
| Trenton, N. J. | 11.2 | 3 | 14.2 | 15.2 | 11 |
| Annapolis, Md. | 11.2 | 4 | 15.2 | 16.2 | 11 |
| Baltimore, Md. | 10.4 | 4 | 14.4 | 15.4 | 9.5 |
| Hagerstown, Md. | 11.9 | 4 | 15.9 | 16.9 | 11.7 |
| Richmond, Va. | 10.9 | 5 | 15.9 | 16.9 | 10.7 |
| Wilmington, N. C. | 10.6 | 6 | 16.6 | 17.6 | 10.4 |
| Brunswick, Ga. | 13 | 6 | 19 | 19 | *14 |
| Jacksonville, Fla. | 10 | 7 | 17 | 17 | 12 |

**Note: The above prices are subject to discounts to dealers and to commercial accounts under contract for one year in accordance with Code of Ethics.**

*Georgia kerosine prices include 1c state tax.

## S. O. OHIO

| | | | | | |
|---|---|---|---|---|---|
| Ohio statewide | 12 | 4 | 16 | 17 | 13 |
| Ashtabula, Clark, Defiance, Franklin, Fulton, Greene, Henry, Lucas, Marion, Miami, Preble, Ross, Summit and Williams counties | 12 | 4 | 16 | 16 | 13 |
| Butler, Montgomery and Pickaway counties | 11 | 4 | 15 | 15 | 13 |

**Note:** Discount on gasoline to dealers and commercial consumers generally thru Ohio is 2c per gal. off above t.w. prices except in counties where prices are below statewide schedule, discount is generally 3c.

Discount on kerosine to dealers and commercial consumers is 3c per gal. off t.w. price thru Ohio.

## S. O. KENTUCKY

| | | | | | |
|---|---|---|---|---|---|
| Lexington, Ky. | 13 | 5 | 18 | 19 | 12 |
| Louisville, Ky. | 12 | 5 | 17 | 18 | 10 |
| Paducah, Ky. | 13 | 5 | 18 | 18 | 11 |
| Covington, Ky. | 12 | 5 | 17 | 18 | 11 |
| Jackson, Miss. | 12 | 5 | 17 | 17 | 11.5 |
| Vicksburg, Miss. | 12 | 5 | 17 | 17 | 11.5 |
| Birmingham, Ala.‡‡ | 12 | 5 | 17 | 17 | 13 |
| Mobile, Ala.‡ | 16.5 | 5 | 21.5 | 21.5 | 10 |
| Montgomery, Ala.* | 14 | 5 | 19 | 19 | 13.5 |
| Macon, Ga. | 13 | 6 | 19 | 19 | †12 |
| Atlanta, Ga. | 13 | 6 | 19 | 19 | *†12.5 |
| Augusta, Ga. | 13 | 6 | 19 | 20 | †14 |
| Savannah, Ga. | 11 | 6 | 17 | 17 | †12 |
| Jacksonville, Fla. | 10 | 7 | 17 | 17 | 12 |
| Miami, Fla. | 13 | 7 | 20 | 21 | 13 |
| Tampa, Fla. | 9 | 7 | 16 | 16 | 12 |
| Pensacola, Fla.** | 13 | 7 | 20 | 21 | 13 |

**Note: Net price of gasoline to dealers is 2c under posted t.w. price thru S. O. Kentucky territory.**

*Local privilege tax of 1 cent on gasoline and ½ cent on kerosine at Montgomery included.

†Georgia kerosine prices include 1c state tax.

**Both tank wagon prices include 1c city tax at Pensacola which went into effect Oct. 15, 1926.

‡Mobile gasoline prices include 1c city tax; Mobile county tax 2½c.

‡‡Birmingham gasoline prices include 1c city tax.

*†3c discount off t.w. price of oil at Atlanta, meeting competition.

## S. O. INDIANA

**‡(Red Crown Gasoline)**

| | | | | | |
|---|---|---|---|---|---|
| Chicago, Ill. | 11 | 3 | 14 | 14 | 9 |
| Decatur, Ill. | 11.4 | 3 | 14.4 | 14.4 | 9 |
| E. St. Louis, Ill. | 10.7 | 3 | 13.7 | 13.7 | 8.2 |
| Joliet, Ill. | 11.4 | 3 | 14.4 | 14.4 | 9 |
| Peoria, Ill. | 11.4 | 3 | 14.4 | 14.4 | 9 |
| Quincy, Ill. | 11.2 | 3 | 14.2 | 14.2 | 8.8 |
| Springfield, Ill. | 11.4 | 3 | 14.4 | 14.4 | 9 |
| Indianapolis, Ind. | 11.3 | 4 | 15.3 | 15.3 | 10.1 |
| Evansville, Ind. | 11.1 | 4 | 15.1 | 15.1 | 9.9 |
| South Bend, Ind. | 11.4 | 4 | 15.4 | 15.4 | 10.2 |
| Detroit, Mich. | 11.8 | 3 | 14.8 | 14.8 | 10.7 |
| Grand Rapids, Mich. | 11.7 | 3 | 14.7 | 14.7 | 10.6 |
| Saginaw, Mich. | 11.9 | 3 | 14.9 | 14.9 | 10.8 |
| Marquette, Mich. | 11.9 | 3 | 14.9 | 14.9 | 10.8 |

Above prices include these inspection fees on both gasoline and kerosine, per gallon: Alabama, 1/40c on gasoline, 1/2c kerosine; Arkansas, 1/20c on both; Florida, 1/8c on both; Illinois, 3/100c on both; Indiana, 2/25c to 1/2c on both; Kansas, 3/50c on both; Louisiana, 1/32c on gasoline; Minnesota, 3/50c on both; Missouri, 1/50c to 1/2c on both; Nebraska 3/100c on both; North Carolina, 1/4c on both; North Dakota, 1/20c on both; Oklahoma, 4/25c on both; South Carolina 1/8c on both; South Dakota, 1/10c on both; Tennessee, 2/5c on gasoline and 1/2c to 4/5c on kerosine; Wisconsin, 1/25c on both.

Kerosine inspection fees only, per gallon: Iowa 7/100c; Michigan, 1/5c to 4/5c per gal.

# Tank Wagon, Service Station Markets for Gasoline and Kerosine

These Prices in Effect September 21, 1931, as Posted by Principal Marketing Companies

## S. O. INDIANA—(*Continued*)

‡(Red Crown Gasoline)

| | Gasoline T.W. | Tax | Total T.W. | S.S. | Oil T.W. |
|---|---|---|---|---|---|
| Green Bay, Wisc | 11.6 | 4 | 15.6 | 15.6 | 9.4 |
| Madison, Wisc | 11.3 | 4 | 15.3 | 15.3 | 9.1 |
| Milwaukee, Wisc | 11.1 | 4 | 15.1 | 15.1 | 8.9 |
| La Crosse, Wisc | 12.2 | 4 | 16.2 | 16.2 | 10 |
| Minneapolis, Minn | 12.2 | 3 | 15.2 | 15.2 | 9.9 |
| Duluth, Minn | 12.5 | 3 | 15.5 | 15.5 | 9.9 |
| Mankato, Minn | 12.1 | 3 | 15.1 | 15.1 | 9.7 |
| Des Moines, Ia | 11.5 | 3 | 14.5 | 14.5 | 8 |
| Davenport, Ia | 11.5 | 3 | 14.5 | 14.5 | 9.3 |
| Sioux City, Ia | 11.1 | 3 | 14.1 | 14.1 | 8.9 |
| Mason City, Ia | 11.5 | 3 | 14.5 | 14.5 | 9.3 |
| St. Louis, Mo | *10.9 | 2 | 12.9 | 12.9 | 8.3 |
| Kansas City, Mo | †11.9 | 2 | 13.9 | 13.9 | 7.6 |
| St. Joseph, Mo | †11.5 | 2 | 13.5 | 13.5 | 7.5 |
| Fargo, N. D. | 13.9 | 3 | 16.9 | 16.9 | 11.9 |
| Grand Forks, N. D. | 14.2 | 3 | 17.2 | 17.2 | 12.2 |
| Minot, N. D. | 13.9 | 3 | 16.9 | 16.9 | 11.9 |
| Pierre, S. D. | 12 | 4 | 16 | 16 | 10.4 |
| Huron, S. D. | 12.3 | 4 | 16.3 | 16.3 | 10.7 |
| Wichita, Kans | 9.8 | 3 | 12.8 | 12.8 | 7.8 |
| Bartlesville, Okla | 8 | 5 | 13 | 16 | 7 |

*Includes city tax of ½c.
†Includes city tax of 1c.

‡Stanolind Blue prices are 1.5c under those shown above. At the following points, prices are below normal on Stanolind Blue:

**(Stanolind Blue Gasoline)**

| | | | | | |
|---|---|---|---|---|---|
| Detroit, Mich | 10.3 | 3 | 13.3 | 13.3 | 10.7 |
| Evansville, Ind | 9.6 | 4 | 13.6 | 9 | 9.9 |
| St. Joseph, Mo | †8 | 2 | 10 | 9.9 | 7.5 |
| Des Moines, Ia | 10 | 3 | 13 | 11.9 | 8 |
| Sioux City, Ia | 9.6 | 3 | 12.6 | 10.9 | 8.9 |

†Includes city tax of 1c.

**Discounts:** Q.D.A., effective May 11, 1931, on gasoline.

**To re-sellers,** thru territory, except Chicago:

| | Under 75,000 Gals. Off S.S. Price | 75,000 Gals. and Over Off T.W. Price |
|---|---|---|
| Ethyl gasoline | 3c | 4c |
| Red Crown gasoline | 2.5c | 3.5c |
| Stanolind Blue | 1.5c | 2c |

In Chicago, in any quantity, discounts are 4c per gal. on Ethyl gasoline, 3.5c on regular motor fuel grades and 2c on "third" grades, by principal marketing companies, discounts being off service station prices in quantities up to 75,000 gallons, and off t.w. price in quantities of 75,000 gallons and over.

**To consumers,** thru territory, except Chicago:

| | 1,000 to 75,000 Gallons Off T.W. Price | 75,000 Gals. and Over Off T.W. Price |
|---|---|---|
| Ethyl gasoline | 3c | 4c |
| Red Crown gasoline | 2.5c | 3.5c |
| Stanolind Blue | 1.5c | 2c |

In Chicago, in quantities over 1,000 gallons: Ethyl gasoline, 4c; regular grades 3.5c; "third" grades 2c, all discounts being off tank wagon price.

## S. O. NEBRASKA

| | Gasoline T.W. | Tax | Total T.W. | S.S. | Oil T.W. |
|---|---|---|---|---|---|
| Omaha, Neb | 11.25 | 4 | 15.25 | 16.25 | 9.25 |
| McCook, Neb | 12 | 4 | 16 | 17.75 | 10.75 |
| Norfolk, Neb | 11.75 | 4 | 15.75 | 16.75 | 9.75 |
| North Platte, Neb | 12.75 | 4 | 16.75 | 17.75 | 10.5 |
| Scottsbluff, Neb | 12 | 4 | 16 | 16 | 10.25 |

**Note: Discounts to dealers, off normal service station prices: Red Crown Ethyl, 3c; Red Crown 2.5c per gal.; Nebraska Blue, 1c.**

## S. O. LOUISIANA

| | Gasoline Posted Retail T.W. | Tax | Total Posted Retail T.W. | Oil Posted Retail S.S. | Oil T.W. |
|---|---|---|---|---|---|
| Little Rock, Ark | 11.5 | 6 | 17.5 | 18.5 | 11 |
| Alexandria, La | 11 | *6 | 17 | 18 | †12 |
| Baton Rouge, La | 10 | 5 | 15 | 16 | †12 |
| New Orleans, La | 8.5 | 6 | 14.5 | 14.5 | 12 |
| Lake Charles, La | 11 | *6 | 17 | 18 | †12 |
| Shreveport, La | 11.5 | 5 | 16.5 | 17.5 | †12 |
| Lafayette, La | 11 | *6 | 17 | 18 | †12 |
| Bristol, Tenn | 12 | 6 | 18 | 19 | 14 |
| Chattanooga, Tenn | 13 | 6 | 19 | 20 | 12 |
| Knoxville, Tenn | 13.5 | 6 | 19.5 | 20.5 | 13.5 |
| Nashville, Tenn | 12.5 | 6 | 18.5 | 19.5 | 12.5 |
| Memphis, Tenn | 11.5 | 6 | 17.5 | 18.5 | 11 |

**Note: Discounts in S. O. La. territory: To dealers and commercial consumers from the tankwagon, 2c per gal. off posted retail t.w. price.**

*Lake Charles, Alexandria, New Orleans and Lafayette gasoline tax includes 5c state tax and 1c parish tax. New Orleans kerosine price includes 1c parish tax in addition to 1c state tax.

†Kerosine price in Louisiana includes 1c state tax.

## MAGNOLIA PETROLEUM

| | Gasoline T.W. | Tax | Total T.W. | S.S. | Oil T.W. |
|---|---|---|---|---|---|
| Muskogee, Okla | 7 | 5 | 12 | 14 | 8 |
| Oklahoma City | 9 | 5 | 14 | 16 | 7 |
| Tulsa, Okla | 8 | 5 | 13 | 15 | 8 |
| Fort Smith, Ark | 11.5 | 5 | 16.5 | 17.5 | 11 |
| Little Rock, Ark | 11.5 | 6 | 17.5 | 18.5 | 11 |
| Texarkana, Ark.* | 8 | *4 | 12 | 14 | 8 |
| Dallas, Tex | 9 | 4 | 13 | 14 | 8 |
| Fort Worth, Tex | 9 | 4 | 13 | 14 | 8 |
| Houston, Tex | 8 | 4 | 12 | 14 | 11 |
| San Antonio, Tex | 8 | 4 | 12 | 14 | 10 |
| El Paso, Tex | 10 | 4 | 14 | 16 | 12 |

*Within city of Texarkana, the state tax on gasoline is 4c per gal. conforming with the Texas state tax. In this district outside of the city the 6c Arkansas tax applies.

†Fort Smith gasoline prices include Oklahoma tax of 5c; outside Fort Smith, Arkansas tax of 6c applies.

## CONTINENTAL OIL

| | Gasoline T.W. | Tax | Total T.W. | S.S. | Oil T.W. |
|---|---|---|---|---|---|
| Denver, Colo | 12 | 4 | 16 | 19 | 12.5 |
| Pueblo, Colo | 12 | 4 | 16 | 19 | 12 |
| Grand Junc., Colo | 14 | 4 | 18 | 21 | 14.5 |
| Casper, Wyo | 11 | 4 | 15 | 18 | 10 |
| Cheyenne, Wyo | 12.5 | 4 | 16.5 | 19.5 | 11.5 |
| Butte, Mont | 12 | 5 | 17 | 20 | 16 |
| Helena, Mont | 16 | 5 | 21 | 24 | 16 |
| Salt Lake City, Utah | 14.5 | 4 | 18.5 | 21.5 | 16 |
| Boise, Ida | 16.5 | 5 | 21.5 | 24.5 | 18 |
| Twin Falls, Ida | †15 | 5 | †20 | 20 | 18 |
| Albuquerque, N. M. | 12 | *6 | 18 | 21 | 14 |

*Tax includes 5c state tax and 1c city tax.
†3c per gal. off t.w. price at Twin Falls to dealers.

## S. O. CALIFORNIA

| | | | | |
|---|---|---|---|---|
| San Francisco, Cal | 3 | 13.5 | 16.5 | 15.5 |
| Los Angeles, Cal | 3 | 13 | 16 | 15.5 |
| Fresno, Cal | 3 | 13.5 | 16.5 | 17 |
| Phoenix, Ariz | 5 | 14.5 | 17.5 | 20 |
| Reno, Nev | 4 | 17.5 | 20.5 | 19 |
| Portland, Ore | 4 | 15 | 18 | 16.5 |
| Seattle, Wash | 5 | 16 | 19 | 20.5 |
| Spokane, Wash | 5 | 19.5 | 22.5 | 20.5 |
| Tacoma, Wash | 5 | 16 | 19 | 20.5 |

**Note:** No discounts off above gasoline prices; tank truck prices are those to resale trade; wholesale prices are generally 6c above tank truck prices, except at Phoenix, 1c.

*Retail prices are those of Standard Stations, Inc., marketing subsidiary of the Standard Oil Co. of California.

## CANADA

Per Imperial Gallon, which is 1.2 American Gallons)

| | Gasoline T.W. | Tax | Total T.W. | S.S. | Oil T.W. |
|---|---|---|---|---|---|
| **ONTARIO** | | | | | |
| Toronto | 17.5 | 5 | 22.5 | 26 | 18.5 |
| Ottawa | 18.5 | 5 | 23.5 | 27 | 19.5 |
| North Bay | 21.5 | 5 | 26.5 | 32 | 22.5 |
| Fort William | 19.5 | 5 | 24.5 | 28 | 17 |
| Border Cities, including Windsor | 17.5 | 5 | 22.5 | 26 | 16.5 |
| **MANITOBA** | | | | | |
| Winnipeg | 19.5 | 5 | 24.5 | 28 | 13.5 |
| **SASKATCHEWAN** | | | | | |
| Regina | 23.5 | 5 | 28.5 | 32.5 | 17 |
| **ALBERTA** | | | | | |
| Edmonton | 24.5 | 5 | 29.5 | 33 | 18 |
| Calgary | 21 | 5 | 26 | 29.5 | 14.5 |
| **BRITISH COLUMBIA** | | | | | |
| Vancouver | 21.5 | 5 | 26.5 | 27.5 | 22 |
| **QUEBEC** | | | | | |
| Montreal | 18.5 | 5 | 23.5 | 27 | 19.5 |
| Quebec City | 20.5 | 5 | 25.5 | 29 | 21.5 |
| Three Rivers | 20.5 | 5 | 25.5 | 29 | 21.5 |
| **NEW BRUNSWICK** | | | | | |
| St. John | 20 | 5 | 25 | 29 | 22 |
| Moncton | 20 | 5 | 25 | 29 | 22 |
| **NOVA SCOTIA** | | | | | |
| Halifax | 20 | 5 | 25 | 29 | 22 |
| **PRINCE EDWARD ISLAND** | | | | | |
| Charlottetown | 20 | 6 | 26 | 30 | 22 |

## NAPHTHA PRICES

| | Oleum Spirits | V.M.&P. Naphtha | Cleaner Naphtha |
|---|---|---|---|
| Chicago | 10.7 | 12.7 | 14.2 |
| Detroit | 13.4 | 14.9 | 15.7 |
| Kansas City | †11.9 | †13.4 | †14.2 |
| Milwaukee | 12.4 | *15.9 | *16.7 |
| Minneapolis | **16.7 | **18.2 | **19 |
| St. Louis | 11.6 | 13.1 | 13.9 |
| New York | | 14 | 20 |
| Boston | | 17 | 20 |

*Includes 2c state tax. †Includes 1c city tax.
**Includes 3c state tax.

### Petroleum Spirits (Solvent)

| | |
|---|---|
| **Tank Cars (F.o.b. refinery or seaboard terminal)** | |
| New York Harbor | 9.00 |
| Philadelphia district | 9.00 |
| Providence | 9.50 |
| **Tank Wagon or Steel Barrels** | |
| New York City | 14 |
| Syracuse | 17 |
| Rochester | 14 |
| Buffalo | ‡14 |
| Providence | 17 |
| Boston | 17 |
| Bridgeport | 15 |
| Newark | 16 |
| Philadelphia | 13 |
| Lancaster | 17 |
| Altoona | 17 |
| Baltimore | 17 |

**Note: 2c off above t.w. prices to large buyers in some instances.**

‡Buffalo price is net.

# Aviation Gasoline Prices

Following are tank wagon prices of aviation gasoline in principal marketing territories showing state and municipal taxes:

## S. O. NEW JERSEY

**Prices in Effect Sept. 21, 1931**

| | T.W. | Tax | Total T.W. |
|---|---|---|---|
| Newark, N. J. | 14.9 | * | 14.9 |
| Baltimore, Md | 15.2 | 4 | 19.2 |
| Washington, D. C. | 15 | 2 | 17 |

*New Jersey road tax of 3c does not apply on aviation gasoline, exemption being claimed at time of purchase.

All above prices are on Stanavo Aviation Gasoline

## COLONIAL BEACON OIL CO.

| | | | |
|---|---|---|---|
| New York City | 17.5 | 2 | 19.5 |
| Boston, Mass | 19 | 3 | 22 |

## S. O. PENNSYLVANIA

| | | | |
|---|---|---|---|
| Philadelphia, Pa | 15 | 3 | 18 |
| Pittsburgh, Pa | 15 | 3 | 18 |
| Altoona, Pa | 15 | 3 | 18 |

## S. O. OHIO

| | | | |
|---|---|---|---|
| Thru Ohio | 15 | 4 | 19 |

Discounts given by S. O. Ohio: For delivery to airports only; 2,000 gals. or over per month, 1c per gal.; 6,000 gals. or over per month, 2c; 12,000 gals. and over per month, 3c; 24,000 gals. and over per Month, 4c.

## S. O. INDIANA

| | | | |
|---|---|---|---|
| Chicago | 14 | 3 | 17 |
| Indianapolis, Ind | 14.3 | 4 | 18.3 |
| Detroit, Mich | 14.8 | 3 | 17.8 |
| Milwaukee, Wis | 14.1 | 2 | 16.1 |
| Minneapolis, Minn | 15.2 | 3 | 18.2 |
| St. Louis, Mo | 13.4 | 2.5 | 15.9 |
| Kansas City, Mo | 13.9 | 3 | 16.9 |
| Fargo, N. D. | 16.9 | 3 | 19.9 |
| Huron, S. D. | 15.3 | 4 | 19.3 |
| Wichita, Kan | 12.8 | 3 | 15.8 |

In S. O. Indiana territory, buyer pays state and city taxes on aviation gasoline, and if he can get a refund from the state, he does so. Kansas City tax of 3c includes 1c city tax; St. Louis tax of 2.5c includes ½c city tax.

(*Continued on Page 100*)

# Merit is always recognized...

It takes the choicest Pennsylvania Crude
the most modern refinery equipment
an able technical staff
experienced craftsmen
to produce oils like these:

## PENNSYLVANIA WINTER OILS

**Free Flowing at Lowest Winter Temperatures**

| Viscosities | Pour Tests |
|---|---|
| 50/55 @ 210 | Below 0° F. |
| 60/65 @ 210 | Below 0° F. |
| 75/80 @ 210 | Below 0° F. |
| 85/90 @ 210 | Below 0° F. |

Also higher viscosities, if desired

**The established good-will of Pennsylvania Motor Oil need not be a "frozen asset" this winter!**

TANK CARS ONLY

FRANKLIN CREEK REFINERY
at Franklin, Pennsylvania

DAUGHERTY REFINERY
at Petrolia, Pennsylania

Address all communications to

## W. H. Daugherty & Son Refining Co.

114 FIFTH AVENUE
NEW YORK

820 TOWER COURT
CHICAGO

# Crude Oil Prices (in Effect Sept. 21, 1931)

*Crude prices for the whole year in OIL PRICE HANDBOOK published annually*

### EASTERN FIELDS

**Posted by Joseph Seep Purchasing Agency**

(All Penna. Grade Crude except Corning, Effective Sept. 12, 1931)

Bradford—Alleghany district (Penna. and New York) (posted by Tide Water Pipe Co., Ltd.).....$2.25
Penna. Grade Oil in National Transit Lines..*1.95
Penna. Grade Oil in Southwest Penna. Pipe Lines..... 1.80
Penna. Grade Oil in Eureka Pipe Lines (West Virginia)..... 1.70
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.)..... 1.60
Corning Grade in Buckeye Pipe Lines (Ohio).. 0.80
(Effective Sept. 16, 1931)
Ragland in Cumberland Pipe Lines (Kentucky) (Effective Jan. 9, 1929).....$0.60

**Posted by Other Companies**

**Ashland Refining Co.:**
Somerset in Cumberland lines (Kentucky) (Effective Aug. 22, 1931).....$0.80

**Stoll Oil Refining Co.:**
Oil City in Stoll lines (Kentucky) (Effective Sept. 16, 1931).....$0.60

*Oil run prior to July 1, 1929 is 5c less per bbl.

### MICHIGAN

Postings discontinued in Muskegon field.

**(Posted by Pure Oil Co.)**

Midland, Midland County (Aug. 23, 1931)..$0.73

### CENTRAL STATES FIELDS

**Posted by Ohio Oil Co.**

Effective Aug. 24, 1931

| | | | |
|---|---|---|---|
| Wooster | $1.00 | Princeton | $0.80 |
| Lima | 0.90 | Illinois | 0.80 |
| Indiana | 0.50 | West Kentucky | 0.75 |

### CANADIAN CRUDE

**Posted by Imperial Oil Refineries, Ltd.**

Effective Aug. 24, 1931

Petrolia, Ont.....$1.80
Oil Springs, Ont.....$1.87
(Effective Aug. 25, 1931)
Turner Valley, Alta.:
45-49.9.....$2.08 50 and above...$2.65

### OKLAHOMA, KANSAS and NORTH TEXAS

**Prices of *Stanolind Crude Oil Purchasing Co.**
**(In Oklahoma, Kansas, North and North Central Texas)**

Effective Aug. 22, 1931

| | | | |
|---|---|---|---|
| Below 29 | $0.46 | 35-35.9 | $0.60 |
| 29-29.9 | 0.48 | 36-36.9 | 0.62 |
| 30-30.9 | 0.50 | 37-37.9 | 0.64 |
| 31-31.9 | 0.52 | 38-38.9 | 0.66 |
| 32-32.9 | 0.54 | 39-39.9 | 0.68 |
| 33-33.9 | 0.56 | 40 and above | 0.70 |
| 34-34.9 | 0.58 | | |

*Prairie Oil & Gas withdrew postings in Oklahoma, Kansas and Texas, Jan. 1, 1931.

Effective Aug. 22, 1931, above prices were met by these companies:

Humble Oil & Refining Co. in Ranger, North Texas, Moran, Mexia, Powell, Boggy Creek, Richland, Wortham and Currie.

The Texas Co., in Oklahoma, North Texas, North Central and Central Texas and North Louisiana.

Carter Oil Co. in Oklahoma and Kansas.

Continental Oil Co., in Oklahoma, Kansas and North Texas.

**East Texas**

Discontinued by Humble, June 3.

**Magnolia Petroleum Co.**
**(In Oklahoma, Kansas and Texas)**

Effective Aug. 22, 1931

**Oklahoma:**
Cushing, Morrison, Oklahoma City, Seminole, Wewoka and Yale.....$0.68
Cement, Duncan and Walters..... 0.60
Healdton..... 0.37
Hewitt and Graham..... 0.52

**Kansas:**
Withdrawn July 22, 1931

**Texas:**
North and North Central:
Archer, Burkburnett, Comanche, Electra, Henrietta, Olden and Stephens.....$0.68
East Texas.....$0.68
East Central Texas:
Thrall (Effective July 24, 1931).....$0.40
Central Texas:
Mexia, Wortham, Corsicana Light, Panola county and Lytton Springs.....$0.64
Corsicana heavy.....$0.34
Panhandle:
Gray county.....$0.58
Carson-Hutchinson counties.....$0.51
West Texas:
Crane, Upton, Howard, Glasscock, and Mitchell counties.....$0.35
South Texas:
Mirando.....$0.60
Darst Creek..... 0.52
Luling..... 0.34

**Louisiana-Arkansas**

Effective Aug. 24, 1931

**North Louisiana:**
Bull Bayou.....$0.68
Cotton Valley..... 0.46
Haynesville..... 0.50
Pine Island..... 0.58

**Arkansas:**
El Dorado and Rainbow.....$0.48
El Dorado, East Field (Calion).....$0.45
Smackover.....$0.45

### PANHANDLE TEXAS

**Humble Oil & Refining Co.**

Effective Aug. 22, 1931

| Hutchinson-Carson Counties | | Gray County | |
|---|---|---|---|
| Below 35 | $0.41 | | $0.46 |
| 35-35.9 | 0.43 | | 0.48 |
| 36-36.9 | 0.45 | | 0.50 |
| 37-37.9 | 0.47 | | 0.52 |
| 38-38.9 | 0.49 | | 0.54 |
| 39-39.9 | 0.51 | | 0.56 |
| 40 and above | 0.53 | | 0.58 |

Above prices met by The Texas Co. on Aug. 22 in Hutchinson, Carson and Gray counties.

### WEST TEXAS and NEW MEXICO

**Humble Oil & Refining Co.**

Effective Aug. 22, 1931

Pecos, Winkler, Crane, Upton, Crockett, Ector, Howard and Glasscock Counties, Tex., and Lea county, N. Mex.....$0.35

Aug. 22, 1931, The Texas Co. same prices in Crane, Upton, Winkler and Lea counties as Humble.

### SOUTH and SOUTHWEST TEXAS

**(Posted by Humble Oil & Refining Co.)**

Effective Aug. 22, 1931

Mirando.....$0.60
Salt Flat..... 0.52
Darst Creek..... 0.52
Pettus, Bee County..... 0.70

**(Posted by The Texas Co.)**

Effective Aug. 22, 1931

Markham.....$0.52

### NORTH LOUISIANA—ARKANSAS FIELDS

**Prices of Standard Oil Co. of Louisiana**

Caddo, Homer, Haynesville, Bull Bayou, El Dorado Crichton, De Soto, Sabine, Sarepta and Carterville.

Effective Aug. 24, 1931

| | | | |
|---|---|---|---|
| Below 29 | $0.46 | 35-35.9 | $0.60 |
| 29-29.9 | 0.48 | 36-36.9 | 0.62 |
| 30-30.9 | 0.50 | 37-37.9 | 0.64 |
| 31-31.9 | 0.52 | 38-38.9 | 0.66 |
| 32-32.9 | 0.54 | 39-39.9 | 0.68 |
| 33-33.9 | 0.56 | 40 and above | 0.70 |
| 34-34.9 | 0.58 | | |

Smackover.....$0.45
Urbana.....Discontinued Aug. 24
*Urania, La. (Effective Aug. 24, 1931)..... 0.45
†Stephens, Ark.:
Below 29.....$0.41
29 and above..... 0.44

*Urania posted by Louisiana Oil Refining Corp.

†Stephens price effective Aug. 24, 1931 posted by Atlantic Oil Producing Co. and Louisiana Oil Refg. Corp.

### *GULF COASTAL

**Posted by Humble Oil & Refining Co.**

Effective Aug. 22, 1931

| | | | |
|---|---|---|---|
| Below 25 | $0.55 | 30-30.9 | $0.61 |
| 25-25.9 | 0.56 | 31-31.9 | 0.62 |
| 26-26.9 | 0.57 | 32-32.9 | 0.63 |
| 27-27.9 | 0.58 | 33-33.9 | 0.64 |
| 28-28.9 | 0.59 | 34-34.9 | 0.65 |
| 29-29.9 | 0.60 | 35 and above | 0.66 |

Refugio heavy.....$0.60

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Raccoon Bend, Refugio light, Sour Lake, Spindletop, Sugarland and West Columbia.

The Texas Co. met above Gulf Coastal schedule Aug. 22, except that it posts these higher grades: 36-36.9, $0.67, 37-37.9, $0.68, 38-38.9, $0.69, 39-39.9, $0.70, 40 and above, $0.71.

## Crude Price Changes

PITTSBURGH — Sept. 16 Joseph Seep Purchasing Agency advanced Corning, O. crude in Buckeye lines 5 cents, making new price $0.80 per barrel. Last previous change was a 5 cent advance Sept. 4.

LOUISVILLE — Sept. 16 Stoll Oil Refining Co. cut Oil City, Ky. crude in its lines 15 cents, making new price $0.60 per barrel at the well. Last previous change was a 10 cent advance Aug. 24.

LINCOLN, Neb.—A city ordinance in Red Cloud, Neb., against self-service gasoline pumps has been upheld in a district court, the Nebraska Petroleum Marketers bulletin reports. A self-service pump was installed, and the case was taken into court, and appealed by the station owner to the district court. The station owner claims he will fight it through the state supreme court.

### Farmer Tax Evasion Fails

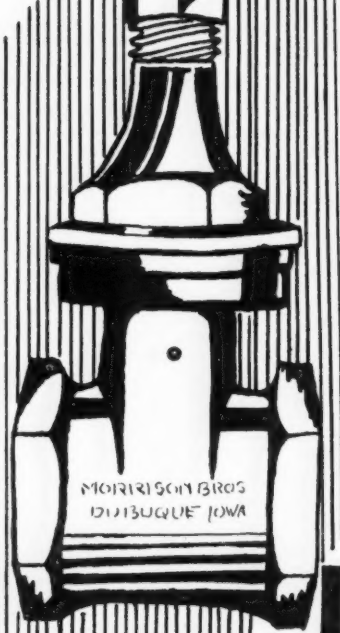
LINCOLN, Neb/—Efforts of 40 farmers in Cheyenne county, Nebraska, to evade the state gasoline tax through an old "original container" law has failed, the Nebraska Petroleum Marketers bulletin reports. The ancient law was applicable to whiskey importation. The court held that gasoline ceases to be a part of interstate commerce when it is unloaded into bulk station tanks, hence subject to the tax. To evade the tax on this law farmers would have to import their gasoline in jugs or tins unopened until the container was on the farm.

# SECURITY

**MORRISON Engineers devote their entire efforts to the improving of Oil Handling Equipment « « « « «**

FIG. 235A

FIG. 235




**The Gate Valves featured have double hand ground disc which seat perfectly for lasting tightness. Built for Service.**

# MORRISON BROS. DUBUQUE, IOWA

# Crude Oil Prices (in Effect Sept. 21, 1931)

**(Prices are per barrel at the well)**

***(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)***

### ROCKY MOUNTAIN FIELDS
**(Posted by Midwest Refining Co.)**

(Effective Aug. 22, 1931)

| | |
|---|---|
| Salt Creek, below 29° | $0.46 |
| " " 29-29.9 | 0.48 |
| " " 30-30.9 | 0.50 |
| " " 31-31.9 | 0.52 |
| " " 32-32.9 | 0.54 |
| " " 33-33.9 | 0.56 |
| " " 34-34.9 | 0.58 |
| Salt Creek 35-35.9 | 0.60 |
| " " 36-36.9 | 0.62 |
| " " 37-37.9 | 0.64 |
| " " 38-38.9 | 0.66 |
| " " 39-39.9 | 0.68 |
| " " 40 and above | 0.70 |

**(Posted by Ohio Oil Co.)**

Effective Aug. 24, 1931

| | |
|---|---|
| Elk Basin, Wyo. | $0.90 |
| Grass Creek Light | 0.90 |
| Big Muddy | 0.68 |
| Lance Creek | 1.05 |
| Rock Creek | 0.70 |
| Sunburst, Mont. | 0.90 |

**(Posted by *Midwest Refining Co.)**

Effective Aug. 24, 1931

| | |
|---|---|
| Cat Creek, Mont. | $0.90 |
| Hogback, N. Mex. | 0.80 |
| Hobbs, N. Mex. | 0.35 |

*Midwest also posts Elk Basin and Grass Creek light crudes.

### CALIFORNIA CRUDE
**††Standard Oil Co. of California**

Effective June 19, 1931

| Gravity | Signal Hill *Seal Beach *Alamitos Heights | Huntington Beach | Inglewood | Playa del Rey | Olinda-Brea Canon | Elwood Terrace | Torrance | Richfield | †Whittier ††La Habra Montebello | Coyote Hills | Santa Fe Springs | Newhall McKittrick Kern River | Midway Sunset Elk Hills Buena Vista Hills | Lost Hills | Coalinga | Wheeler Ridge | **Athens **Rosecrans **Dominguez | **Santa Paula | **Orcutt |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14–19.9 | $0.65 | $0.65 | $0.65 | $0.65 | $0.65 | .... | $0.65 | $0.65 | $0.65 | $0.65 | .... | $0.55 | $0.55 | $0.55 | $0.55 | $0.55 | .... | $0.65 | $0.55 |
| 20–20.9 | .65 | .65 | .66 | .65 | .66 | .... | .65 | .65 | .65 | .65 | .... | .... | .55 | .55 | .55 | .55 | .... | .65 | .56 |
| 21–21.9 | .65 | .65 | .68 | .66 | .67 | .... | .65 | .66 | .65 | .65 | .... | .... | .55 | .57 | .55 | .55 | .... | .65 | .57 |
| 22–22.9 | .65 | .66 | .70 | .67 | .68 | F.o.b. Ship | .66 | .68 | .65 | .65 | .... | .... | .56 | .59 | .55 | .55 | .... | .65 | .59 |
| 23–23.9 | .67 | .68 | .72 | .68 | .70 | | .67 | .70 | .65 | .66 | .... | .... | .58 | .60 | .55 | .55 | .... | .65 | .61 |
| 24–24.9 | .69 | .70 | .74 | .69 | .72 | | .68 | .72 | .65 | .67 | $0.65 | .... | .61 | .62 | .55 | .55 | $0.69 | .66 | .63 |
| 25–25.9 | .71 | .72 | .76 | .70 | .74 | | .70 | .74 | .65 | .69 | .65 | .... | .64 | .64 | .57 | .55 | .71 | .68 | .65 |
| 26–26.9 | .73 | .74 | .... | | .76 | .... | .... | .... | .... | .71 | .65 | .... | .66 | .66 | .... | .... | .73 | .70 | .67 |
| 27–27.9 | .75 | .76 | .... | | .78 | .... | .... | .... | .... | .73 | .68 | .... | .68 | .67 | .... | .... | .75 | .72 | .... |
| 28–28.9 | .77 | .... | .... | | .80 | .... | .... | .... | .... | .75 | .71 | .... | .71 | .69 | .... | .... | .77 | .74 | .... |
| 29–29.9 | .79 | .... | .... | | .... | .... | .... | .... | .... | .77 | .73 | .... | .74 | .71 | .... | .... | .79 | .76 | .... |
| 30–30.9 | .81 | .... | .... | | .... | .... | .... | .... | .... | .79 | .75 | .... | .76 | .72 | .... | .... | .81 | .78 | .... |
| 31–31.9 | .... | .... | .... | | .... | .... | .... | .... | .... | .... | .78 | .... | .... | .... | .... | .... | .83 | .... | .... |
| 32–32.9 | .... | .... | .... | | .... | .... | .... | .... | .... | .... | .80 | .... | .... | .... | .... | .... | .85 | .... | .... |
| 33–33.9 | .... | .... | .... | | .... | $0.79 | .... | .... | .... | .... | .83 | .... | .... | .... | .... | .... | .87 | .... | .... |
| 34–34.9 | .... | .... | .... | | .... | .81 | .... | .... | .... | .... | .85 | .... | .... | .... | .... | .... | .89 | .... | .... |
| 35–35.9 | .... | .... | .... | | .... | .84 | .... | .... | .... | .... | .87 | .... | .... | .... | .... | .... | .... | .... | .... |
| 36–36.9 | .... | .... | .... | | .... | .87 | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... | .... |

Subject to field gathering charge of 5c per barrel.

*Seal Beach and Alamitos Heights prices end with $0.75 for crude 27 and above.

†Whittier and La Habra crude ends with 22-22.9 gravity.

**Posted by Union Oil Co. of California, effective June 20, 1931.

††Postings on Kettleman Hills, Ventura Avenue, Athens-Rosecrans and Dominguez discontinued by Standard. Kettleman Hills, 30 and above, posted at 66 cents by Associated Oil Co. and General Petroleum Co., June 19, 1931.

# REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

### Refiners' Supplies

| | Sept. 21 | Sept. 14 |
|---|---|---|
| Soda Ash Light 58% bags, cwt. | $1.15-1.38 | $1.15-1.38 |
| Silicate of Soda 60 deg. drums, cwt. | $1.75-1.90 | $1.75-1.90 |
| Silicate of Soda 40 deg. tank cars, cwt. | $0.70 | $0.70 |
| Silicate of Soda 40 deg. drums, cwt. | $1.00 | $1.00 |
| Sal Soda wks. | $0.90-1.20 | $0.90-1.20 |
| Caustic Soda 76% solid, cwt. | $2.25-2.50 | $2.25-2.50 |
| Sulfuric Acid 60 deg. tank cars, f. o. b. shipping point per ton | $11.00-12.50 | $11.00-12.50 |
| Sulfur, flowers of, cwt. | $3.10-4.00 | $3.10-4.00 |
| Liquid Chlorine, tank cars, wks., lb. | 1.75 | 1.75 |

### Compounder's Supplies

| | Sept. 21 | Sept. 14 |
|---|---|---|
| **Vegetable Oils** | | |
| Linseed carloads, spot, lb. | 7.60 | 7.60 |
| Tanks, spot | 7.00 | 7.00 |
| Soya Bean, Tank, coast, lb | 5.50 | 6.60 |
| **Oleic Acid** | | |
| Distilled, tanks, lb. | 7.00 | 7.00 |
| Distilled, bbls., lb. | 7.875 | 7.875 |
| Saponified, tanks, lb. | 7.75 | 7.75 |
| Saponified, bbls., lb. | 7.625 | 7.625 |
| **Lard Oils** | | |
| Prime Winter Strained, lb. | 11.75 | 11.75 |
| Extra Winter Strained, lb. | 7.50 | 7.50 |
| Extra, lb. | 7.25 | 7.25 |
| Extra No. 1, lb. | 6.875 | 6.875 |
| No. 1, lb. | 6.625 | 6.625 |
| No. 2, lb. | 6.00 | 6.00 |
| Tallow oil, lb. | 7.00 | 7.00 |
| **Neatsfoot Oil** | | |
| Pure, bbls., lb. | 9.50 | 9.50 |
| Extra, bbls., lb. | 7.00 | 7.00 |
| No. 1 bbls., lb. | 6.75 | 6.75 |
| Cold Pressed, lb. | 13.25 | 13.25 |
| **Fish Oils** | | |
| Menhaden Oil Light Pressed, gal. | 33–34 | 33–34 |
| Light Pressed, tank cars, N. Y., gal. | 27–28 | 27–28 |
| Yellow bleached, gal. | 41 | 41 |
| Whale, extra winter bleached, gal. | 68 | 68 |
| **Naval Stores** | | |
| Steam distilled turpentine, N. Y., gal. | 38 | 38 |
| Steam, distilled turpentine, Savannah, gal. | 35 | 35 |
| Gum turpentine, N. Y., gal. | 50 | 50 |
| Gum turpentine, f.o.b. cars Savannah, gal. | 44 | 44 |
| Wood Rosin, N. Y., bbl. | $4.65 | $4.65 |
| Wood Rosin F, Savn'h, bbl. | $4.55 | $4.55 |
| Gum Rosin B, N. Y., bbl. | $3.90 | $4.05 |
| Gum Rosin B, f.o.b. cars Savannah, bbl. | $3.15 | $3.30 |
| Rosin oil, pure, gal. | 50 | 50 |
| Rosin, oil, compounded, gal. | 44 | 44 |
| **Pine Tar** | | |
| Kiln burnt, bbl. | $10.00-11.00 | $10.00-11.00 |
| Retort, bbl. | $11.00-12.00 | $11.00-12.00 |
| **Alcohol** | | |
| Denatured Formula 5, in tanks, per gal. | 24 | 24 |

### Nebraska Station Changes

LINCOLN, Neb.—Service station changes reported in the current bulletin of the Nebraska Petroleum Marketers are:

Oskosh, H. C. Fickers, insurance agent, has purchased the interest of Ralph D. Naslund, in a super-station.

West Point, Virgil E. Gywn has opened a station, selling Marathon products.

York, L. F. Whittemore has leased a station of the Phillips Petroleum Co.

Farwell, Farmers have organized the Farmers Oil Co., and $800 was pledged at a recent organization meeting.

# Hope for Richfield Reorganization Shown in Receiver's Report

LOS ANGELES, Sept 15

RECEIVER William C. McDuffie, manager of Richfield Oil Co.'s affairs since Jan. 15, last, recently indicated in a report to the federal court that hopes were still entertained of rehabilitating the company under a perfected plan of reorganization.

No definite scheme was outlined in the report, however, and apparently suggestions in this direction to date have not been satisfactory to all concerned. It is logical to expect the Cities Service interests, who control a large block of Richfield stock and who advanced a considerable sum of money in payment of the California company's state gasoline tax for the first quarter of 1931, will step into the breach when conditions warrant.

In his report the Receiver pointed out that since the first account to the court, April 27, business has been carried on through the most chaotic conditions the California oil industry has ever experienced. Crude prices were at extremely low levels with heavy crude receiving highest price and lighter crude lowest price: a reversal of normal oil-price schedules that was due to a complete breakdown of gasoline prices.

At the start of the early summer gasoline war Richfield had only a small inventory of gasoline and during the war no effort was made to increase the gallonage as such an increase would have meant additional losses, and having no inventory there was no urge, as with some companies, to reduce inventory irrespective of losses.

An examination of the company's service station leases and other sales contracts resulted in many hundred of each being found so unprofitable as to warrant disaffirmation. This was done and effected a substantial saving.

In the opinion of the receiver: "It is essential that all interested groups of creditors and security holders should begin renewed efforts toward the consummation of a reorganization plan on a basis that will allow a provision for new money for carrying on of the business pending reorganization and the issue of securities acceptable to the various classes of security holders and creditors.

A point of considerable dispute between bondholders and the management concerns the position new money will occupy relative to the outstanding bonds. That is, whether or not such an advance should have a prior lien to the bonds.

In February it was necessary for the receiver to borrow $977,000 in order to pay gasoline taxes for the last quarter of 1930. Those who were willing to advance this sum were seeking to make the advance so that it would be a prior lien to the bonds. At this time the Bondholders' Protective Committee protested with the result that the advances were refused and the necessary capital was obtained by means of receiver's certificates that were issued junior to the bonds.

However, prior to May 15, when the receiver needed the $782,000 to pay gasoline taxes for the first quarter of 1931, the same problem was presented. Cities Service Co. was willing to make the advance for the gasoline tax, but only on condition that it were made to the trustee as a lien prior to the bonds. The committee again protested but finally consented on condition that the receiver repay it out of unmortgaged assets, on Aug. 15, 1931.

Prior to Aug. 15, the receiver reported that he could repay $250,000 and that he should be able to pay $100,000 monthly until the entire advance was paid.

Discussing affairs of Richfield Oil Corp. of New York Mr. McDuffie said that from the date of the receivership action the Eastern subsidiary had been operated at a loss. To correct this a contract was made with the Arkansas Natural Gas Corp. (Cities Service subsidiary) that will guarantee against loss and may result in a small profit.

IN A profit and loss statement for the period Jan. 15 to May 31, loss through depletion and depreciation of property and equipment, amounted to $2,250,666.07. Added to this was a loss of $1,295,345.51 on operations of subsidiary companies. From this total of $3,546,011.58 was deducted a profit of $895,124.65 on operations of business in receivership and a profit of $107,537.62 made by two subsidiary companies. This left a total loss for the period of $2,543,349.31.

The receiver pointed out that with any reorganization it is assumed that the oil producing properties will be set on the books at their fair value rather than at their appraised figure since the appraisal represented the calculated worth of the oil at selling prices as of the date of the receivership.

Since that time there has been a sharp decline in oil prices, materially affecting the valuation figure, and with the depletion charges in excess of the market price of the oil it is considered obvious that the type of valuation used was not suitable for calculating depletion and depreciation.

For the time being, the receiver added, it is necessary that the appraisal figure be used, even though it sets up a high rate of depletion, which, in turn, results in excessive charges to the refinery and high cost products, thus giving a resultant operating statement that is misleading unless these foregoing facts are kept in mind.

Although the Richfied affairs are still in a hazardous condition and although the preferred and common stockholders have little to look forward to, the receiver is, at least, keeping his head above water and future progress will be watched with considerable interest.

# Refiners To Take Part In Road Oil Congress

TULSA, Sept. 19.—Plans were completed here Sept. 17 for Mid-Continent refiners to present their case with reference to the use of road oils made from paraffin base crudes, when the Mid-Continent Road Oil Congress meets in Tulsa Oct. 8 and 9.

Representatives of several refiners meet with the petroleum products research bureau of the Tulsa Chamber of Commerce, and it was decided that the refiners would have a paper prepared by one of their technical men for presentation at the meeting.

Discussions at the meeting Sept. 17 indicated an effort would be made to convince highway engineers that the paraffin base road oils could be used as satisfactorily as are the asphalt base oils. According to several technical men present, virtually all the states have road oil specifications which are difficult to meet with other than the asphalt base crudes.

Dr. R. W. Leslie of the Skelly Oil Co., El Dorado, Kan., told of the success that company is having making road oils for use on Kansas secondary roads. F. W. Pomeroy of the Texas Pacific Coal & Oil Co., Wynnewood, Okla., told of the success his company had had making road oils from mixed base crudes and from paraffin base crudes for use on the Oklahoma highways.

E. Bee Guthrie of the good roads committee of the Chamber of Commerce said the program for the congress was rapidly taking shape, and that several outstanding authorities on the subject would appear on the two day program. Mr. Guthrie estimated that at least 600 persons would attend the congress.

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CHICAGO—P. H. Banks has been appointed traffic manager of Henry H. Cross Co., Inc. here, according to H. H. Cross, president.

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SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

# Transactions in Oil Shares on New York Stock Exchange

| 1930 High | 1930 Low | 1931 High | 1931 Low | Listed Shares | Par Value | Company | Div. Rate Period | Last Div. Paid | Transactions Week Ended Sept. 19 Sales | High | Low | Last | Week's Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31½ | 16½ | 23 | 15⅛ | 922,075 | N.P. | Amerada Corp. | 50cQ | July 31, 31 | 5,000 | 17 | 15½ | 15½ | — 1⅝ |
| 37 | 5⅛ | 12⅜ | 3¾ | 209,180 | N.P. | American Republics Corp. | .... | ..... | 2,800 | 4¾ | †3½ | 3½ | — 1⅜ |
| 51 | 30 | 31 | 20 | 2,240,000 | $25 | Associated Oil Co. | 25cQ | June 30, 31 | 10 | 20½ | 20½ | 20½ | — 3⅛ |
| 51⅜ | 16⅝ | 23⅝ | 11⅛ | 2,691,764 | 25 | Atlantic Refining Co. | 25cQ | June 15, 31 | 18,200 | 14⅞ | 12¾ | 12¾ | — ¼ |
| 34 | 8⅝ | 14½ | 5¾ | 2,257,678 | 25 | Barnsdall Corp. A | .... | May 11, 31 | 24,900 | 7¾ | 6⅜ | 6⅞ | — 1 |
| 35 | 21 | 25 | 12 | 2,060,966 | 25 | California Petroleum Corp. | .... | Jan. 1, 29 | ..... | .... | .... | .... | .... |
| 20⅝ | 8¾ | 10¼ | 7½ | 1,444,970 | N.P. | Colonial Beacon Oil Co. | .... | ..... | 1,500 | 9½ | 9 | 9 | — ⅛ |
| 30½ | 7¼ | 12 | 5 | 4,712,745 | N.P. | Continental Oil Co. (Del.) | .... | ..... | 31,500 | 7⅞ | 6½ | 6¾ | — 1⅛ |
| 71¼ | 22⅝ | 47 | 12 | 413,333 | N.P. | General Asphalt Co. | 75cQ | June 15, 31 | 23,000 | 18 | †12 | 12 | — 6⅜ |
| 116⅞ | 29¼ | 68½ | 27 | 97,071 | $100 | Houston Oil Co. | .... | ..... | 11,500 | 35 | 28¾ | 29¾ | — 5¾ |
| 11¾ | 6⅝ | 14⅛ | 5¾ | 673,414 | 25 | do new | .... | ..... | 17,400 | 7½ | †5¾ | 5¾ | — 2⅛ |
| 28⅜ | 3 | 4⅝ | 2 | 556,356 | 10 | Indian Refining Co. | .... | Dec. 15, 20 | 2,600 | 2½ | 2⅜ | 2½ | — ⅛ |
| 12 | 3½ | 4½ | 2 | 1,309,003 | N.P. | Louisiana Oil Ref'g. Corp. | .... | ..... | 1,400 | 2¾ | 2⅜ | 2⅜ | — ⅝ |
| 90 | 66 | 55 | 34 | 40,000 | $100 | do pfd. | $1.62½Q | Aug. 15, 31 | ..... | .... | .... | .... | .... |
| 10⅜ | 1¾ | 3¾ | 1 | 330,000 | N.P. | Maracaibo Oil Exploration Co. | .... | ..... | 2,300 | 1¾ | 1 | 1 | — ¾ |
| 182 | 150 | 171 | 90 | 459,428 | $100 | Mexican Petroleum Co. | .... | Apr. 20, 31 | 50 | 94 | †90 | 94 | — 7 |
| 100 | 100 | 100 | 100 | 120,000 | 100 | do pfd. | $2Q | July 20, 31 | ..... | .... | .... | .... | .... |
| 37 | 9¾ | 20¾ | 10⅜ | 1,244,383 | N.P. | Mexican Seaboard Oil Corp. | .... | Oct. 15, 24 | ..... | .... | .... | .... | .... |
| 33 | 11 | 16¾ | 5¾ | 1,857,912 | N.P. | Mid-Continent Petroleum Corp. | .... | Feb. 16, 31 | 16,800 | 7½ | 6⅜ | 6⅞ | — 1⅛ |
| 32 | 16 | 19½ | 7 | 6,648,052 | N.P. | Ohio Oil Co. | .... | Mar. 14, 31 | 27,200 | 9¼ | 7½ | 7¾ | — 1⅝ |
| 64¼ | 42 | 35⅛ | 25 | 1,000,000 | $50 | Pan Amer. Pet. & Trans. Co. | 40cQ | July 20, 31 | ..... | .... | .... | .... | .... |
| 67½ | 30 | 36½ | 24 | 2,473,577 | 50 | do B non-voting | 40cQ | July 20, 31 | 1,800 | 30 | 30 | 30 | 0 |
| 12¾ | 1¾ | 4¼ | 1½ | 199,370 | N.P. | Panhandle Prod. & Refg. Co. | .... | ..... | 1,100 | 2 | 1½ | 1½ | — ½ |
| 80 | 47½ | 20 | 10 | 25,666 | $100 | do pfd. | .... | July 2, 23 | 20 | 15 | 15 | 15 | — 5 |
| 27¼ | 5⅞ | 10⅞ | 5 | 3,726,084 | N.P. | Petroleum Corp. of America | 25cQ | June 1, 31 | 66,400 | 6⅝ | †5 | 5 | — 1¾ |
| 44¾ | 11½ | 16⅜ | 4¾ | 4,416,251 | N.P. | Phillips Petroleum Co. | .... | Jan. 2, 31 | 30,200 | 7⅛ | 5¾ | 6 | — 1⅛ |
| 2½ | ½ | 1½ | ½ | 1,184,917 | $25 | Pierce Oil Corp. | .... | ..... | 400 | ½ | ½ | ½ | 0 |
| 52 | 7½ | 23¾ | 6½ | 150,000 | 100 | do pfd. | .... | Feb. 1, 22 | 600 | 8⅛ | 7⅛ | 7½ | — 1¾ |
| 7⅛ | 1⅜ | 3⅜ | 1 | 2,500,000 | N.P. | Pierce Petroleum Corp. | .... | Feb. 16, 31 | 9,400 | 1¾ | 1¼ | 1⅜ | — ¼ |
| 54 | 11¼ | 20⅜ | 6½ | 2,441,432 | $25 | Prairie Oil & Gas Co. | .... | Mar. 31, 31 | 5,000 | 9½ | 8 | 8⅛ | — 1⅝ |
| 60 | 16⅜ | 26½ | 13¼ | 4,050,000 | 25 | Prairie Pipe Line Co. | 75cQ | July 1, 31 | 6,300 | 15⅛ | †13¼ | 13¼ | — 1⅜ |
| 11⅞ | 1 | 6 | 1⅞ | 749,017 | 50 | Producers & Refiners Corp. | .... | Sept. 15, 23 | 2,100 | 2¾ | 2 | 2 | — ¾ |
| 40 | 11½ | 16 | 6 | 56,907 | 50 | do pfd. | .... | May 4, 25 | 10 | 6½ | 6½ | 6½ | 0 |
| 27¼ | 7⅜ | 11⅞ | 5½ | 3,038,370 | 25 | Pure Oil Co. | .... | Sept. 1, 30 | 18,500 | 7 | 6 | 6⅛ | — 1 |
| 114¼ | 90½ | 101⅞ | 66⅜ | 130,000 | 100 | do 8% pfd. | $2Q | July 1, 31 | 110 | 84½ | 78¼ | 79½ | — 6⅛ |
| 28¼ | 4⅜ | 6⅝ | 1 | 2,126,250 | N.P. | Richfield Oil Co. (California) | .... | Sept. 1, 30 | 2,700 | 1¼ | 1⅛ | 1⅛ | — ⅛ |
| 25¾ | 5 | 10¼ | 2⅞ | 1,235,542 | N.P. | Rio Grande Oil Co. | .... | July 25, 30 | 8,100 | 3⅝ | †2⅞ | 3 | — ¾ |
| 56½ | 36¾ | 42⅜ | 14 | 681,728 | $13.40 | Royal Dutch Co. (N. Y. Shares) | 93.85c | Aug. 4, 31 | 15,000 | 19¼ | †14 | 14 | — 5⅜ |
| 48⅜ | 26 | 34 | 10½ | 68,810 | £2 | Shell Transp. & Trading Co. | 72.6c | July 23, 31 | 160 | 12 | †10½ | 10½ | — 2½ |
| 25½ | 5¼ | 10¼ | 4⅛ | 13,070,625 | N.P. | Shell Union Oil Corp. | .... | June 30, 30 | 30,200 | 5⅛ | †4⅛ | 4⅛ | — 1 |
| 106¼ | 55 | 78 | 25⅞ | 400,000 | $100 | do pfd. | .... | July 1, 31 | 3,700 | 30¼ | †25⅛ | 25⅛ | — 5⅞ |
| 37 | 5⅝ | 11 | 5 | 869,271 | 10 | Simms Petroleum Co. | .... | Sept. 15, 30 | 4,200 | 6¼ | 6 | 6 | 0 |
| 32 | 9¾ | 15⅞ | 6¼ | 6,148,294 | N.P. | Sinclair Cons. Oil Corp. | .... | Apr. 15, 31 | 68,900 | 8⅞ | 7¼ | 7¼ | — 1½ |
| 112¼ | 86 | 103 | 77 | 141,294 | $100 | do pfd. | $2Q | Aug. 15, 31 | 900 | 101 | 95 | 101 | — 1 |
| 42 | 10⅜ | 12⅞ | 3⅛ | 1,000,069 | 25 | Skelly Oil Co. | .... | Dec. 15, 30 | 2,400 | 5¼ | 4⅜ | 4⅜ | — 1 |
| 99¾ | 42 | 62 | 10 | 120,000 | 100 | do pfd. | .... | May 1, 31 | 1,400 | 25¼ | 14 | 14 | —11¾ |
| .... | .... | 21 | 14⅞ | 31,923,072 | 25 | Socony Vacuum Corp. | 40cQ | June 15, 31 | 83,100 | 17 | †14⅞ | 15 | — 2¼ |
| 106⅜ | 98 | 105¼ | 99⅞ | 764,836 | 100 | S. O. Export Corp. prd. | $2.50 S.A. | June 30, 31 | 1,500 | 106 | 103 | 103 | — 2¾ |
| 75 | 42¼ | 51¾ | 31½ | 13,102,900 | N.P. | S. O. California | 62½cQ | June 15, 31 | 28,800 | 36½ | 33¼ | 36¼ | — 3 |
| 49 | 14⅜ | 19 | 8¾ | 320,000 | $25 | S. O. Kansas | .... | Mar. 16, 31 | 6,000 | 11¾ | 9¾ | 10½ | — ½ |
| 84⅞ | 43½ | 52½ | 30⅝ | 25,548,466 | 25 | S. O. New Jersey | ††25cQ | June 15, 31 | 112,800 | 35⅝ | 33⅛ | 33⅜ | — 2⅝ |
| 46⅝ | 19¾ | 26 | 13⅞ | 17,849,353 | 25 | S. O. New York | 40cQ | June 15, 31 | ..... | .... | .... | .... | .... |
| 70 | 39 | 45¼ | 30 | 1,544,275 | N.P. | Sun Oil Co. | 25cQ | June 15, 31 | 4,300 | 37 | †30 | 30 | — 7½ |
| 108½ | 97¾ | 104½ | 94 | 100,000 | $100 | do pfd. | $1.50Q | Sept. 1, 31 | 220 | 100 | 98⅛ | 99⅞ | — ⅛ |
| 9⅜ | ¾ | 1¾ | ⅝ | 776,979 | N.P. | Superior Oil Corp. | .... | ..... | 800 | ⅞ | ¾ | ¾ | — ⅛ |
| 60½ | 28¼ | 36¼ | 18 | 9,851,163 | $25 | The Texas Corp. | 50cQ | July 1, 31 | 40,400 | 21⅜ | 19⅜ | 20 | — 1¼ |
| 14½ | 4 | 6½ | 2½ | 930,404 | 10 | Texas Pacific Coal & Oil Co. | .... | Dec. 31, 29 | 2,800 | 3¾ | 3½ | 3½ | 0 |
| 17¾ | 5⅞ | 9 | 4 | 5,996,965 | N.P. | Tide Water Associated Oil Co. | .... | Feb. 16, 31 | 30,400 | 5½ | 4⅛ | 4⅛ | — 1¼ |
| 89¾ | 53 | 68 | 35 | 732,644 | $100 | do pfd. | $1.50Q | July 1, 31 | 800 | 41½ | †35 | 35 | —13 |
| 31 | 12 | 18 | 10½ | 2,191,820 | N.P. | Tide Water Oil Co. | 15cQ | June 30, 31 | ..... | .... | .... | .... | .... |
| 94⅞ | 68 | 83 | 50 | 199,446 | $100 | do pfd. | $1.25Q | Aug. 15, 31 | 400 | 50 | †50 | 50 | —10 |
| 50 | 20⅛ | 26⅝ | 14 | 2,325,006 | 25 | Union Oil Co. of California | 50cQ | Aug. 10, 31 | 10,500 | 15½ | 14 | 14½ | — 2 |
| 38½ | 23 | 25⅛ | 19 | 1,254,048 | N.P. | Union Tank Car Co. | 40cQ | Sept. 1, 31 | 5,200 | 19¾ | †19 | 19 | — ¾ |
| 27 | 4¼ | 7⅜ | 1⅝ | 769,531 | N.P. | Warner Quinlan Co. | .... | July 3, 30 | 600 | 2¼ | 2 | 2⅛ | 0 |
| 21 | 6½ | 9⅜ | 3½ | 428,967 | N.P. | H. F. Wilcox Oil & Gas Co. | .... | May 10, 28 | 2,400 | 4¼ | 3¾ | 3¾ | — ¾ |

*New high †New low ††Also extra—S. O. New Jersey 25c. Total sales 786,780

## Pittsburgh Stock Exchange

**Transactions Week Ended Sept. 18, 1931**

| | Sales | High | Low | Last | Change Over Week |
|---|---|---|---|---|---|
| Ark. Nat. Gas. | 100 | 3½ | 3½ | 3½ | — ½ |
| Devonian Oil. | 250 | 5¼ | 4⅜ | 4⅜ | — ¾ |
| ‡Leonard Oil & Development | 1,900 | .85 | .75 | .75 | — .25 |
| †*Lone Star Gas | 29,558 | 14⅜ | 10¾ | 11 | —3½ |
| ‡ do pfd. | 170 | 100⅛ | 100 | 100⅛ | — ⅞ |
| Phoenix Oil. | 500 | .10 | .10 | .10 | 0 |
| Plymouth Oil. | 275 | 9¼ | 8½ | 8½ | — ¾ |
| Shamrock Oil & Gas | 200 | 2 | 2 | 2 | 0 |
| ††Western Public Service | 8,015 | 5½ | 5 | 5⅛ | — ⅜ |

‡Unlitsed. †New low record. *Ex dividend.

## New York Curb Bonds

**Week Ending Sept. 18**

| | High | Low | Last | Change |
|---|---|---|---|---|
| Beacon Oil 6s '36 | 97 | 97 | 97 | —1 |
| Cities Serv. 5s '66 | 59½ | 56 | 56 | —3¾ |
| Cities Serv. 5s '50 | 60⅝ | 56½ | 56¾ | —4¼ |
| Cities Serv. G. 5½s '42 | 60⅛ | 59⅛ | 59⅛ | —1 |
| Cities Serv. G. Pipe 6s '43 | 77¼ | 76⅛ | 76⅛ | —7⅛ |
| Cont. Oil 5½s '37 | 83¾ | 83¾ | 83¾ | — ¼ |
| Empire O & R 5½s '42 | 54⅜ | 52⅝ | 52⅝ | —2 |
| Gulf Oil 5s '37 | 103 | 101⅞ | 102½ | — ½ |
| Gulf Oil 5s '47 | 101½ | 101¼ | 100½ | —1 |
| Indep. Oil 6s '39 | 90½ | 90¾ | 90¾ | —4⅞ |
| Sun Oil 5½s '39 | 101¼ | 100 | 100 | —1 |

## Aviation Gasoline Prices

(*Continued from Page 93*)

### S. O. LOUISIANA

| | T.W. | Tax | Total T.W. |
|---|---|---|---|
| New Orleans, La. | 18 | 6 | 24 |
| Nashville, Tenn. | 20 | 6 | 26 |
| Memphis, Tenn. | 19 | 6 | 25 |

2c per gal. discount off above posted retail t.w prices to dealers and commercial consumers.

### S. O. NEBRASKA

| | | | |
|---|---|---|---|
| Omaha | 16.25 | 4 | 20.25 |

2c per gal. refund to reseller.

### CONTINENTAL OIL CO.

| | | | |
|---|---|---|---|
| Denver, Colo. | 15 | 4 | 19 |
| Cheyenne, Wyo. | 15.5 | 4 | 19.5 |
| Helena, Mont. | 19 | 5 | 24 |
| Salt Lake City, Utah. | 17.5 | 4 | 21.5 |
| Albuquerque, N. M. | 16 | *6 | 22 |
| Boise, Ida. | 19.5 | 5 | 24.5 |

*Tax includes 5c state tax and 1c city tax.

### S. O. CALIFORNIA

| | | | |
|---|---|---|---|
| Phoenix, Ariz. | 17.5 | 4 | 21.5 |
| Los Angeles, Cal. | 16.5 | 3 | 19.5 |
| San Francisco, Cal. | 17 | 3 | 20 |
| Reno, Nev. | 21 | 4 | 25 |
| Portland, Ore. | 17.5 | 4 | 21.5 |
| Seattle, Wash. | 17.5 | 3 | 20.5 |
| Spokane, Wash. | 21.5 | 3 | 24.5 |

**Note:** 4c per gallon added to t.w. price, in S. O. California territory, to customers taking delivery direct into the fuel tank of planes.

## New York Bonds

**Week Ending Sept. 18**

| | High | Low | Last | Change |
|---|---|---|---|---|
| Asso. Oil gold 6s | 103¾ | 103½ | 103½ | — ⅛ |
| Atlantic Refg. deb. 5s | 102½ | 102 | 102 | — ½ |
| Cal. Pet. 5s | 80½ | 79 | 79 | —1 |
| Cal. Pet. 5½s | 90¼ | 90 | 90 | —1 |
| General Pet. 5s | 102¾ | 102¾ | 102¾ | — ¼ |
| Humble Oil & Refg. 5s | 103¾ | 103 | 103 | — ½ |
| Humble Oil & Refg. 5½s | 102¼ | 101⅞ | 102 | — ¼ |
| Pan Amer. P & T 6s | 102 | 101¾ | 101¾ | — ¼ |
| Pan Amer. P & T 6s | 33⅛ | 31⅛ | 31⅛ | —2 |
| Pan Amer. P & T 6s ct. | 31 | 31 | 31 | 0 |
| Phillips Pet. 5½s | 63 | 56¼ | 56¼ | —7¼ |
| Pure Oil 5½s | 86¼ | 80 | 80 | —8½ |
| Pure Oil 5½s | 82½ | 79 | 79 | —5 |
| Richfield Oil of Calif. 6s | 25⅜ | 24½ | 24½ | —1⅛ |
| Shell Union Oil 5s | 69 | 66½ | 67½ | —1½ |
| Shell Union Oil 5s with war. | 69 | 66½ | 67 | —5 |
| Sinclair Con. Oil 7s | 94½ | 87⅝ | 87⅞ | —6⅝ |
| Sinclair Con. Oil 6½s | 91½ | 86½ | 87⅜ | —4½ |
| Sinclair Con. Crude 5½s | 102⅜ | 101¾ | 101¾ | — ½ |
| Sinclair Pipeline 5s | 100 | 95 | 96 | —4¼ |
| Skelly Oil 5½s | 62½ | 59 | 59 | —4 |
| S. O. N. J. 5s | 104½ | 103¼ | 103¼ | — ⅞ |
| S. O. N. Y. 4½s | 101 | 99¼ | 99¼ | —1½ |
| Union Oil of Calif. 6s A. | 105 | 102 | 102 | —3½ |
| Union Oil of Calif. 5s C. | 99 | 99 | 99 | 0 |
| Union Oil of Calif. 5s war. | 85 | 82 | 82 | —2⅞ |
| Warner-Quinlan 6s | 40¾ | 40 | 40 | —1 |
| White Eagle Oil 5½s | 103⅞ | 103¾ | 103⅞ | + ⅛ |

## New Stations Building

**Note: Material used in this column is taken principally from newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy. Headquarters of companies and addresses of individuals are given wherever possible.**

**The list as published from week to week cannot be looked upon as indicative of the relative extent to which stations are being built in various parts of the country.**

### Service Stations

**Lynchburg, Va.**—Shell Eastern Petroleum Products, Inc., 141 Milk St., Boston, Mass.
**Renovo, Pa.**—Richard Adams.
**Croton, N. Y.**—Arthur T. Culley.
**Cedar Falls, Ia.**—Mr. Boslough, First & Franklin Sts.
**Red Wing, Minn.**—Cities Service Oil Co., 60 Wall St., New York, N. Y.
**Fenton, Mich.**—Gulf Refining Co., Frick Bldg. Annex, Pittsburgh, Pa.
**Eau Claire, Wis.**—Walker Bros., Harding Ave.
**Niles, Mich.**—Paul M. Collins, Pectone, Ill.
**East Liverpool, O.**—Potters Lumber Co.
**St. Clair, Mo.**—Standard Oil Co. of Indiana, 910 S. Michigan Ave., Chicago.
**Mountain Grove, Mo.**—Harold A. Cover, West First St.
**Lockland, O.**—Millard Kunz, William St.
**Viola, Ill.**—Mr. Hofer.
**Berne, Ind.**—Grover W. Neuenschwander..
**Viola, Ill.**—Standard Oil Co. Indiana, 910 S. Michigan Ave., Chicago, Ill.
**Rockwell, Ia.**—George H. Meyer.
**Tipton, Ia.**—Arrow Petroleum Products Co., Davenport, Ia.
**Rockwell, Ia.**—D. N. Campbell.
**New Britain, Conn.**—Rackliffe Oil Co., Washington St.
**Brighton, N. Y.**—Sunshine Oil Co., Monroe & Hollywood Aves.
**Ivanhoe, Va.**—Mr. Vaughn.
**August, Me.**—Colonial Beacon Oil Co., Everett, Mass.
**McHenry, Ill.**—Nick Freund.
**Fond du Lac, Wis.**—August Bauman, Thirteenth & Main Sts.
**Platteville, Wis.**—Frank Yelinek.
**Fond du Lac, Wis.**—Fred Buetcheli and Irvin Rausch.
**Pawnee, Ill.**—John Groh.
**Wichita, Kan.,**—Standard Oil Co. of Indiana, 910 S. Michigan Ave., Chicago, Ill.
**Little Rock, Ark.**—Willie Beasley.
**Paris, Tex.**—Henry House, Lamar Ave. & Thirty Third St.
**Snyder, Okla.**—Al Summers, Palace Fuel Station.
**Johnson, Kans.**—K. T. Oil Co., 304 Kaufman Bldg., Wichita, Kans.
**Comanche, Tex.**—Tip Ross, Gorman, Tex.
**York, Neb.**—Elmer Monismith.
**Plattsmouth, Neb.**—Charles V. Barrows, Murray Corner, Neb.
**Davenport, Ia.**—Continental Oil Co., Ponca City, Okla.
**Utica, S. D.**—John Bride, Jr.
**Des Moines, Ia.**—Continental Oil Co., Ponca City, Okla.
**Plankinton, S. D.**—White Eagle Oil Co., 606 Vandalia Ave., St. Paul, Minn.
**Crestline, O.**—F. J. Gosser, Jr.
**Reading, Mich.**—Williams Oil Co., Adrian.
**Chrisman, Ill.**—Mayor H. P. Perrin.
**Danville, Ky.**—A. D. Young, Second & Main Sts.
**Cayuga, Ind.**—Otto Julich.
**Ironton, O.**—W. W. Bauer, Red Cap Service Co.
**Toledo, O.**—Dr. H. K. Beckwith, Starr Ave. & Main St.
**Portsmouth, O.**—Mrs. Tillie Boyer, Second & Washington Sts.
**Shakopee, Minn.**—W. E. Redman.
**Wausau, Wis.**—George Carver.

### Bulk Stations

**Kenton, O.**—Ohio Oil Co., Donnell Bldg., Findlay, O.

---

**A. Y. McDonald Mfg. Co., Dubuque,** Ia., has made improvements in its new lock flush fill box. The opening on the fill box is large enough to permit easy access to the lock cap, an important feature in cold weather particularly. Formerly, it was difficult to get a fill box that could be locked and still be accessible.

Another advantage of the new device is that the lock cap can be in any position and still have the lug fit over it, it being necessary in the old arrangement to have the cap in just the right position before lock could be inserted. A malleable handle is furnished with each fill box for unscrewing lock caps.

# THE OIL INDUSTRY EXCHANGE

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SALES EXECUTIVE with thorough knowledge of oils; twenty years experience in refining, lubrication engineering and sales management, desires permanent connection. Aggressive. Always produced results. Eastern location preferred. Address Box 777.

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SALES ENGINEER—Seven years experience, 27 years old. Married. Thorough knowledge petroleum products and their application. Also experience oil refinery process control instruments. Position small company preferred. Also experienced testing petroleum products. Address Box 787.

## *Miscellaneous*

**WHAT IT COSTS**

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## *For Sale*

**FOR SALE:** Five Bowser No. 102, one Bowser No. 97, one Bowser Kerosene 5-gallon, one Wayne 405, 1 gallon. $100 for all, crated, FOB Buffalo, N. Y. Excellent condition. Address Box 788.

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Advertisers having box numbers should be addressed in care of National Petroleum News, 1213 West 3rd Street, Cleveland, Ohio, unless otherwise specified.

# Standard Oil Stocks on New York Curb Market

| 1930 High | 1930 Low | 1931 High | 1931 Low | Shares Issued | Par Value | Company | Div. Rate Period | Last Div. Paid | Transactions Week Ended Sept. 19 Sales Shares | High | Low | Last | Week's Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 11¼ | 16 | 6¼ | 40,000 | $25 | Borne Scrymser Co. | .... | Oct. 15, 30 | ..... | .... | .... | .... | .... |
| 69 | 39⅞ | 56 | 40 | 200,000 | 50 | Buckeye Pipe Line Co. | $1Q | June 15, 31 | ..... | .... | .... | .... | .... |
| 184⅞ | 100¼ | 129½ | 101 | 120,000 | 25 | Chesebrough Mfg. Co. | ††$1Q | June 30, 31 | 100 | 105 | 103½ | 103½ | — 5 |
| 7⅝ | 3 | 3½ | 2 | 5,977,873 | N.P. | Creole Petroleum Co. | .... | ..... | 2,600 | 2⅛ | 2⅛ | 2⅛ | — 1/8 |
| 65¾ | 20¼ | 39 | 20⅝ | 30,000 | 50 | Cumberland Pipe Line Co. | 50cQ | June 15, 31 | 800 | 25⅛ | 23 | 23½ | — 3⅜ |
| 54¾ | 26 | 36 | 24 | 50,000 | 100 | Eureka Pipe Line Co. | $1Q | July 1, 31 | 450 | 31 | 27 | 27 | — 5 |
| 6¾ | 2½ | 3 | 1 | 280,000 | N.P. | Galena Oil Corp. | .... | ..... | ..... | .... | .... | .... | .... |
| 119 | 57¼ | 72 | 49⅞ | 2,974,645 | $25 | Humble Oil & Ref'g. Co. | 50cQ | July 1, 31 | 3,800 | 55 | 50⅛ | 50⅜ | — 6⅝ |
| 30 | 15 | 18½ | 9⅞ | 26,557,496 | N.P. | Imperial Oil Corp. | 12½cQ | Sept. 1, 31 | 8,800 | 12½ | 10½ | 10½ | — 2⅛ |
| 28 | 15 | 18 | 10 | ..... | N.P. | do registered | 12½cQ | Sept. 1, 31 | ..... | .... | .... | .... | .... |
| 41 | 14½ | 21⅛ | 8 | 300,000 | $10 | Indiana Pipe Line Co. | 25cQ | Aug. 15, 31 | 200 | 10 | †8 | 8 | — 2⅛ |
| 24 | 11⅜ | 15½ | 8¾ | 14,247,088 | N.P. | International Petroleum Co. | 25cQ | June 15, 31 | 1,840 | 11¾ | 9¾ | 9¾ | — 2 |
| 22⅜ | 11½ | 17½ | 11¼ | 509,000 | $12.50 | National Transit Co. | 25cQ | June 15, 31 | 300 | 11½ | 11¼ | 11¼ | — 1/4 |
| 21 | 10⅛ | 14½ | 7½ | 100,000 | 10 | New York Transit Co. | ††15cQ | July 15, 31 | 100 | 8 | 8 | 8 | 0 |
| 54 | 26¼ | 34¼ | 25 | 40,000 | 50 | Northern Pipe Line Co. | ††$1.50Q | July 1, 31 | ..... | .... | .... | .... | .... |
| 108 | 100⅜ | 102⅞ | 80 | 579,465 | 100 | Ohio Oil Co. pfd. | $1.50Q | June 15, 31 | 900 | 91⅛ | 90½ | 90½ | — 1½ |
| 32 | 12 | 15½ | 8 | 400,000 | 25 | Penn Mex. Fuel Co. | 75c | June 24, 31 | 100 | 8 | 8 | 8 | — 2 |
| 33 | 4⅞ | 16½ | 3¼ | 160,000 | 25 | Solar Refining Co. | .... | Dec. 20, 29 | 1,500 | 16¼ | 15¾ | 15¾ | — ⅜ |
| 20⅛ | 6¾ | 17 | 10 | 100,000 | 10 | Southern Pipe Line Co. | 50cQ | Sept. 1, 31 | 300 | 11 | 11 | 11 | — 2⅜ |
| 45⅞ | 18 | 23⅞ | 12⅜ | 1,200,000 | 25 | South Penn Oil Co. | 25cQ | June 30, 31 | 300 | 16 | 14¾ | 14¾ | — 1⅜ |
| 64 | 32 | 42½ | 31¼ | 35,000 | 50 | Southwest Pa. Pipe Lines. | $1Q | July 1, 31 | 50 | 37 | 37 | 37 | — 5 |
| 59⅞ | 30 | 38½ | 19⅛ | 16,850,587 | 25 | S. O. Indiana | 50cQ | June 15, 31 | 33,400 | 24½ | 21⅞ | 21⅞ | — 2⅞ |
| 40½ | 18⅞ | 23⅝ | 15⅝ | 2,588,735 | 25 | S. O. Kentucky | 40cQ | June 30, 31 | 4,100 | 18⅝ | 16⅜ | 16⅜ | — 2⅜ |
| 48⅞ | 34 | 36½ | 19¼ | 190,822 | 25 | S. O. Nebraska | 50cQ | June 20, 31 | 100 | 27 | 27 | 27 | — 2 |
| 108½ | 43¼ | 62½ | 35 | 766,667 | 25 | S. O. Ohio | 62½cQ | July 1, 31 | 200 | 47¾ | 45½ | 47¾ | — 1⅝ |
| .... | .... | 115¼ | 100 | 120,000 | 100 | do 5% pfd. | $1.25Q | July 15, 31 | 20 | 101 | 101 | 101 | — 1/2 |
| 10 | 4 | 10 | 2⅝ | 34,158 | 25 | Swan Finch Oil Corp. | .... | Jan. 15, 29 | ..... | .... | .... | .... | .... |
| 97⅞ | 45⅜ | 69¾ | 22⅛ | 5,624,158 | 25 | Vacuum Oil Co. | 50cQ | June 20, 31 | ..... | .... | .... | .... | .... |

*New high †New low ††Also extra—Chesebrough 50c; N. Y. Transit 10c; Northern P. L. 50c.

# Oil and Royalty Stocks on New York Curb

| 1930 High | 1930 Low | 1931 High | 1931 Low | Par Value | | Transactions Sales Shares | Week Ended Sept. 19 High | Low | Last | Week's Change |
|---|---|---|---|---|---|---|---|---|---|---|
| 4½ | ½ | 1¾ | ½ | N.P. | American Maracaibo. | 1,300 | 5/8 | ½ | ½ | 0 |
| 16¾ | 4⅝ | 6½ | 3 | N.P. | Arkansas Nat. Gas. | 3,800 | 3⅞ | †3 | 3 | — 3/4 |
| 16⅜ | 4⅜ | 6¾ | 3 | N.P. | do A. | 10,100 | 3¾ | 2⅞ | 3 | — 3/4 |
| 8⅛ | 6¼ | 7 | 5⅛ | $10 | do pfd. | 1,600 | 5¾ | 5⅜ | 5⅜ | — ½ |
| 1 | ¼ | 1 | 1/8 | N.P. | Atlantic Lobos. | 500 | ¼ | ¼ | ¼ | 0 |
| 1½ | ⅛ | 3¼ | 3/8 | $50 | do pfd. | ..... | .... | .... | .... | .... |
| 21 | 13⅜ | 16⅞ | 8½ | N.P. | British American coup. | ..... | .... | .... | .... | .... |
| .... | .... | 16¾ | 10 | N.P. | do registered | 100 | 15⅞ | 15⅞ | 15⅞ | — 3/4 |
| 2¾ | ⅝ | 2⅜ | ½ | $¼ | Carib Syndicate. | 2,200 | ¾ | ⅝ | ⅝ | — 1/8 |
| 44¼ | 13⅛ | 20¾ | 7⅜ | N.P. | Cities Service. | 107,500 | 9¼ | †7⅜ | 7⅞ | — 1½ |
| 93⅞ | 78¼ | 84¾ | 60¾ | $100 | do pfd. | 1,300 | 62⅞ | †60¾ | 60¾ | — 2⅜ |
| 9 | 7¼ | 7½ | 4⅞ | 10 | do pref. B. | 1,200 | 5¾ | †4⅞ | 4⅞ | — 7/8 |
| 89⅞ | 80 | 84 | 59½ | 100 | do pref. BB. | 100 | 72½ | 71 | 71 | — 2 |
| 8¼ | 1⅛ | 3⅛ | ¾ | N.P. | Colon Oil Corp. | 2,200 | 1⅛ | 1 | 1 | — 1/8 |
| 21 | 3⅜ | 7⅛ | 2 | N.P. | Col. Oil & Gas. vtc. | 2,400 | 2¾ | 2⅜ | 2⅜ | — 1/2 |
| 5⅞ | 2 | 2¾ | 1¼ | $1 | Consolidated Royalty. | ..... | .... | .... | .... | .... |
| 74¾ | 1¼ | 3¾ | 1 | N.P. | Cosden Oil. | 2,200 | 1½ | 1¼ | 1¼ | — 1/8 |
| 70 | 10¼ | 15 | 1 | $100 | do pfd. | ..... | .... | .... | .... | .... |
| 1 | ¼ | ⅝ | 1/8 | N.P. | Crown Central Petrol. | ..... | .... | .... | .... | .... |
| 21¾ | 2½ | 5 | 2 | N.P. | Darby Petroleum. | 100 | 3 | 2½ | 2½ | — 3/4 |
| 11 | 2 | 6 | 2½ | N.P. | Derby Oil & Refining. | 2,900 | 3 | 2¾ | 2¾ | — 3/8 |
| 60 | 30 | 40¼ | 25 | N.P. | do pfd. | 150 | 26 | †25 | 26 | — 7 |
| 106⅞ | 58⅛ | 76 | 38 | $25 | Gulf Oil Corp. | 9,300 | 52 | 43⅛ | 44 | — 3⅝ |
| 40¾ | 36 | 9¾ | 9¾ | .... | Honolulu Oil Corp. | ..... | .... | .... | .... | .... |
| 47½ | 12⅝ | 16⅞ | 7⅜ | N.P. | Indian Ter. Ill'g. Oil A | 1,200 | 8⅝ | †7⅜ | 7⅜ | — 1⅜ |
| 53½ | 12⅝ | 16⅞ | 7⅜ | N.P. | do B. | 400 | 8⅝ | †7⅝ | 7⅝ | — 1¼ |
| 1¾ | ⅝ | ⅝ | ¼ | $5 | Intercontinental Petrol. | 12,900 | 5/8 | ¼ | ⅜ | — 1/8 |
| 3 | ⅞ | 1⅞ | ½ | N.P. | Kirby Petroleum. | 100 | ¾ | ¾ | ¾ | + ¼ |
| 4¾ | ½ | 1½ | ½ | $25 | Leonard Oil Devel. | 3,400 | ¾ | ⅝ | ⅝ | — 1/4 |
| 29 | 4⅞ | 6¾ | 3½ | N.P. | Lion Oil Refining. | 200 | 3½ | 3½ | 3½ | — ¾ |
| 55⅞ | 19⅝ | 29 | 10⅜ | N.P. | Lone Star Gas. | 10,100 | 12½ | †10⅜ | 10¼ | — 3¼ |
| 31 | 5½ | .... | .... | $25 | MacMillan Petroleum. | ..... | .... | .... | .... | .... |
| ½ | 1/8 | ½ | 1/8 | $1 | Magdalena Syndicate. | 7,200 | 1/8 | 1/4 | 1/8 | 0 |
| 16 | 3 | 5 | 3½ | N.P. | Margay Oil Co. | ..... | .... | .... | .... | .... |
| 7½ | 1¾ | 4⅞ | 1½ | N.P. | Mexico-Ohio Oil. | 600 | 3 | 2¾ | 2¾ | — ¾ |
| .... | .... | 8⅛ | 2 | N.P. | Michigan Gas & Oil. | 100 | 3 | 3 | 3 | 0 |
| 11⅜ | 2¼ | 4⅝ | 2 | N.P. | Mid. States Pet. A vtc. | 200 | 2½ | †2 | 2 | — ¾ |
| 6 | ⅝ | 1½ | ¾ | N.P. | do B vtc. | 200 | ¾ | ¾ | ¾ | 0 |
| 36½ | 5 | 11 | 2⅜ | $5 | Missouri-Kansas P.L. | 11,600 | 4 | †2⅜ | 2½ | — 1½ |
| 6 | ⅜ | ⅝ | ¼ | 1 | do B vtc. | 1,600 | ¼ | ¼ | ¼ | 0 |
| ⅜ | ⅛ | ⅞ | ⅛ | 1 | Mountain & Gulf. | ..... | .... | .... | .... | .... |
| 12½ | 3¾ | 5⅞ | 3⅜ | 10 | Mountain Producers. | 100 | 4¼ | 3⅞ | 3⅞ | — 5/8 |
| 41⅜ | 19⅞ | 26½ | 16⅛ | N.P. | National Fuel Gas. | 2,000 | 17¼ | †16⅛ | 17⅛ | — 1/8 |
| 3½ | 1⅛ | 1½ | ⅛ | $5 | New Bradford Oil. | 100 | 1/8 | 1/8 | 1/8 | — 1⅛ |
| 3½ | 2⅛ | 2⅛ | 1½ | 10 | New England Fuel. | 100 | 1½ | †1½ | 1½ | 0 |
| 16⅞ | 4 | .... | .... | 25 | N. Y. Pet. Royalty. | ..... | .... | .... | .... | .... |
| .... | .... | 6½ | 6½ | 10 | N. American Oil. | ..... | .... | .... | .... | .... |
| 11¼ | 2⅛ | 3¼ | 1⅛ | N.P. | North Central Texas. | 300 | 1⅜ | 1½ | 1½ | — 1/8 |
| 4⅛ | ⅝ | 2½ | ⅜ | N.P. | North European Oil. | 5,500 | ⅜ | ⅜ | ⅜ | — ¼ |
| 11⅜ | 3⅛ | 5 | 1 | N.P. | Oilstocks Ltd. A. | ..... | .... | .... | .... | .... |
| 11½ | 4½ | 5 | 2½ | N.P. | do B. | ..... | .... | .... | .... | .... |
| 19½ | 5½ | 15 | 4⅝ | N.P. | Pacific Western Oil. | 1,300 | 5⅛ | 4⅞ | 4⅞ | — 3/8 |
| 2½ | ¼ | ¾ | 1/8 | N.P. | Pandem Oil. | 3,700 | 1/8 | 1/8 | ¼ | + 1/8 |
| 4⅜ | 1 | 2 | ⅛ | N.P. | Pantepec of Venezuela. | 500 | ½ | ⅜ | ½ | + 1/8 |
| 5⅞ | ½ | 1⅛ | ⅜ | .... | Petroleum Corp. war. | 500 | ⅜ | †⅜ | ⅜ | — 1/8 |
| 27½ | 16¼ | 19 | 6⅝ | $5 | Plymouth Oil. | 1,200 | 9 | 8¼ | 8⅞ | — ⅜ |
| 8 | 3⅛ | 4⅛ | ½ | N.P. | Producers Royalty. | 500 | ⅞ | ⅝ | ¾ | 0 |
| 99 | 81⅜ | 83½ | 15¾ | $100 | Pure Oil 6% pfd. | ..... | .... | .... | .... | .... |
| 10½ | 1½ | 2½ | 1¼ | N.P. | Red Bank Oil. | ..... | .... | .... | .... | .... |
| 5⅜ | ⅜ | 2¼ | ½ | N.P. | Reiter-Foster Oil. | 1,200 | 1½ | 1¼ | 1¼ | — ¼ |
| 23½ | 6½ | 11 | 1⅛ | $25 | Richfield Oil pfd. | ..... | .... | .... | .... | .... |
| 25 | 2¼ | 5 | 1¾ | N.P. | Root Refining pfd. | 100 | *5 | 3 | 5 | + 1½ |
| 12⅞ | 5½ | 3¾ | 1 | $10 | Roy. Corp. of Amer. pfd | ..... | .... | .... | .... | .... |
| 8⅝ | 2 | 2⅞ | 1¼ | N.P. | Ryan Consolidated. | 500 | 2 | 1⅝ | 1⅝ | ¼ |
| 2½ | ⅛ | 1⅜ | ½ | $10 | Salt Creek Consol. | ..... | .... | .... | .... | .... |
| 15¼ | 5¼ | 7⅝ | 4 | 10 | Salt Creek Producers. | 1,200 | 5⅝ | 4⅞ | 4⅞ | — 5/8 |
| 8 | 1¾ | 5¼ | 2 | 25 | Shreve. El Dorado P.L. | ..... | .... | .... | .... | .... |
| 17 | 6 | 7½ | 3¾ | N.P. | Southland Royalty. | 1,700 | 4¼ | 4 | 4 | — ¾ |
| 10 | 2 | 5¼ | 1 | $5 | Sunray Oil. | 3,600 | 1¼ | 1 | 1 | — ¼ |
| 19½ | 8 | 12⅞ | 6¼ | N.P. | Texon Oil & Land. | 300 | 8 | †6¼ | 7½ | — 1 |
| 47½ | 19 | 24½ | 13¼ | $25 | Union Oil Associates. | 500 | 14 | 13⅜ | 14 | — 2⅜ |
| 4½ | ⅝ | 1⅞ | ½ | 5 | Venezuela Petroleum. | 2,000 | ¾ | †½ | ¾ | 0 |
| 5 | 2 | 3½ | 2⅜ | 1 | Woodley Petroleum. | ..... | .... | .... | .... | .... |
| 2½ | ⅛ | 2¼ | ¼ | N.P. | Y Oil & Gas. | 1,500 | 7/8 | ¾ | ⅞ | 0 |

*New high. †New low.

# Oil Dividends

## Declared Last Week

| Company and Period | Amount | Stock of Record Payable | Record |
|---|---|---|---|
| Cities Serv. m. | 2½c | Nov. 2 | Oct. 15 |
| do stock m. | ½% | Nov. 2 | Oct. 15 |
| do pfd. m. | 50c | Nov. 2 | Oct. 15 |
| do pfd. B m. | 5c | Nov. 2 | Oct. 15 |
| do pfd. BB m. | 50c | Nov. 2 | Oct. 15 |

## Awaiting Payment

| Company and Period | Amount | Stock of Record Payable | Record |
|---|---|---|---|
| Amer. Natl. Gas pfd. q. | 15c | Oct. 1 | Sept. 15 |
| British American q. | 20c | Oct. 1 | Sept. 14 |
| Chesebrough Mfg. q. | $1 | Sept. 30 | Sept. 11 |
| do extra. | 50c | Sept. 30 | Sept. 11 |
| Cities Serv. m. | 2½c | Oct. 1 | Sept. 15 |
| do stock m. | ½% | Oct. 1 | Sept. 15 |
| do pfd. m. | 50c | Oct. 1 | Sept. 15 |
| do pfd. B m. | 5c | Oct. 1 | Sept. 15 |
| do pref. BB m. | 50c | Oct. 1 | Sept. 15 |
| Gulf Oil Corp. q. | 37½c | Oct. 1 | Sept. 20 |
| Humble Oil & Refg. q. | 50c | Oct. 1 | Sept. 1 |
| Lone Star Gas q. | 22c | Sept. 30 | Sept. 15 |
| McColl Frontenac Oil pfd. q. | $1.50 | Oct. 15 | Sept. 30 |
| Mountain Prod. q. | 25c | Oct. 1 | Sept. 15 |
| National Refining q. | 12½c | Nov. 15 | Nov. 1 |
| New York Transit q. | 15c | Oct. 15 | Sept. 25 |
| do extra. | 10c | Oct. 15 | Sept. 25 |
| N. Cent. Texas pfd. q. | $1.62½ | Oct. 1 | Sept. 10 |
| Pure Oil 5¼% pfd. q. | $1.25 | Oct. 1 | Sept. 10 |
| do 6% pfd. q. | $1.50 | Oct. 1 | Sept. 10 |
| do 8% pfd. q. | $2 | Oct. 1 | Sept. 10 |
| South Penn Oil q. | 25c | Sept. 30 | Sept. 15 |
| S. W. Pa. Pipe Lines q. | $1 | Oct. 1 | Sept. 15 |
| S. O. Kentucky q. | 40c | Sept. 30 | Sept. 15 |
| S. O. Nebraska q. | 50c | Sept. 21 | Aug. 27 |
| S. O. Ohio q. | 62½c | Oct. 1 | Sept. 15 |
| do pfd. q. | $1.25 | Oct. 15 | Sept. 30 |
| Texas Corp. q. | 50c | Oct. 1 | Sept. 4 |
| Texon Oil & Land q. | 25c | Sept. 30 | Sept. 15 |
| Tide Water Assoc. Oil pfd. q. | $1.50 | Oct. 1 | Sept. 21 |
| Valvoline Oil pfd. q. | $2 | Oct. 1 | Sept. 21 |

## Paid Last Week

| Company and Period | Amount | Date Paid |
|---|---|---|
| Atlantic Refg. q. | 25c | Sept. 15 |
| Buckeye Pipe Line q. | $1 | Sept. 15 |
| International Pet. q. | 25c | Sept. 15 |
| Ohio Oil pfd. q. | $1.50 | Sept. 15 |
| Socony-Vacuum q. | 40c | Sept. 15 |
| S. O. California q. | 62½c | Sept. 15 |
| S. O. Indiana q. | 25c | Sept. 15 |
| S. O. New Jersey q. | 25c | Sept. 15 |
| do extra. | 25c | Sept. 15 |
| Sun Oil q. | 25c | Sept. 15 |
| Valvoline Oil q. | $1.50 | Sept. 15 |

# NEW PATENTS

**Prepared by R. E. Burnham, patent and trade-mark attorney, 1343 H Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.**

## August 11, 1931

### REFINING

**Process of cracking oil vapors into vapor phase**—Joseph B. Weaver and Cary R. Wagner, Chicago, Ill., assignors to Gyro Process Co., Detroit, Mich. Filed Feb. 17, 1928. No. 1,818,513.

**Process and apparatus for converting hydrocarbons**—William M. Cross, Kansas City, Mo., assignor to Gasoline Products Co., Wilmington, Del. Filed Mar. 11, 1925. No. 1,818,674.

### PRODUCTION

**Boring appliance**—Mathieu A. Kapeluchikoff, Baku, Russia. Filed Mar. 6, 1931. No. 1,817,986.

**Means for measuring temperature in bore holes**—Frederick W. Huber, Riverside, Calif. Filed May 1, 1929. No. 1,818,221.

**Polish-rod hanger**—La Rue B. Chevalier, Iola, Kans. Filed June 10, 1929. No. 1,818,303.

**Well-reamer**—Van J. Kubin, Brea, and Perry Funderburk, Fullerton, Calif., assignors to Chicksan Oil Tool Co. Filed Feb. 7, 1929. No. 1,818,405.

**Deep-well oil-tubing pump**—George E. Bigelow, Southgate, Calif., assignor of one-half to Pacific Pump Works, Huntington Park, Calif. Filed Apr. 19, 1928. No. 1,818,455.

**Drill-stem**—Bernard H. Scott, Glendale, Calif. Filed May 25, 1929. No. 1,818,508.

### MISCELLANEOUS

**Receptacle-evacuating apparatus (for evacuating crank-cases of automobiles)**—Herman J. Engbrecht, Kansas City, Mo., assignor to Standard Oil Co. of Indiana. Filed May 5, 1925. No. 1,818,122.

**Adapter for drain-outlets of crank-cases**—Herman J. Engbrecht, Kansas City, Mo., assignor to Standard Oil Co. of Indiana. Filed Mar. 7, 1925. No. 1,818,123.

**Drain-pipe device**—Herman J. Engbrecht, Kansas City, Mo., assignor to Standard Oil Co. of Indiana. Filed May 25, 1925. No. 1,818,124.

**Drum-gripper**—Charles L. Hooper and Robert F. Sutherland, Rochester, N. Y., assignors to Vacuum Oil Co., New York, N. Y. Filed June 30, 1927. No. 1,818,134.

**Gasoline-dispensing nozzle**—Carl G. Abbott, Haviland, Kans. Filed Mar. 5, 1930. No. 1,818,663.

**Process of manufacturing color lakes from petroleum** — Gellert Alleman, Swarthmore, Pa., assignor to Sun Oil Co., Philadelphia, Pa. Filed Aug. 24, 1926. No. 1,818,778.

## August 18, 1931

### REFINING

**Method of treating heavy oils for the production of light oils by the employment of metallic halides**—William H. Shiffler, Oakland, Calif., assignor to Standard Oil Co. of California. Filed Aug. 11, 1926. No. 1,819,006.

**Method of sealing containers in the art of cracking hydrocarbons**—Eugene C. Herthel, Chicago, Ill., assignor to Sinclair Refining Co., New York, N. Y. Filed Mar. 7, 1929. No. 1,819,095.

**Highly active carbon and its manufacture**—Henry B. Hass, Charleston, W. Va., to assignor to Gasoline Recovery Corporation. Filed May 28, 1927. No. 1,819,165.

**Method and apparatus for producing activated charcoal**—Henry B. Hass, Charleston, W. Va., assignor to Gasoline Recovery Corporation. Filed Sept. 17, 1928. No. 1,819,166.

**Activated carbon**—Paul Zurcher, Florence, Colo., assignor to Continental Oil Co., Ponca City, Okla. Filed Aug. 13, 1928. No. 1,819,314.

**Process of treating liquid hydrocarbons**—Gerhardus H. van Senden, Martinez, Calif., assignor to Shell Development Co., San Francisco, Calif. Filed Mar. 27, 1928. No. 1,819,348.

**Activated clay and method of producing same**—Walter S. Baylis, Los Angeles, Calif., assignor to Filtrol Co., Los Angeles, Calif. Filed May 22, 1926. No. 1,819,496.

**Apparatus for decomposition and processing of petroleum hydrocarbons**—John C. Black, Destrehan, La., assignor to Gasoline Products Co., Wilmington, Del. Filed Aug. 29, 1925. No. 1,819,729.

**Filtration of tars**—Frank J. Gainer, Wood River, Ill., assignor to Standard Oil Co. of Indiana. Filed July 5, 1928. No. 1,819,745.

**Removal of gas and low-boiling fractions from petroleum products**—Walter G. Whitman and Clarke C. Miller, Whiting, Ind., assignors to Standard Oil Co. of Indiana. Filed Mar. 9, 1927. No. 1,819,760.

### PRODUCTION

**Core-barrel valve**—Rexford O. Anderson, Houston, Tex. Filed May 31, 1930. No. 1,818,981.

**Expansion fish-tail bit**—Edwin C. Weisgerber, Los Angeles, Calif. Filed June 28, 1930. No. 1,819,273.

**Fluid-operated pump**—Paul F. Yungling, Los Angeles, Calif., assignor to Scott-Ross & Co., same place. Filed June 27, 1928. No. 1,819,351.

**Underreamer** — Roland R. Crum, Whittier, Calif. Filed Apr. 2, 1928. No. 1,819,357.

**Underreamer** — Roland R. Crum, Whittier, Calif. Filed Apr. 3, 1928. No. 1,819,358.

**Expanding rotary reamer** — John Grant, Los Angeles, Calif. Filed Feb. 14, 1928. No. 1,819,367.

**Lubricating mechanism for deep-well drills**—Frank L. O. Wadsworth, Pittsburgh, Pa. Filed Aug. 19, 1922. No. 1,819,532.

**Stage-lift-flowing device**—Alexander Boynton, San Antonio, Tex. Filed Dec. 10, 1926. No. 1,819,538.

**Well-cementing apparatus** — Reuben C. Baker, Coalinger, Calif., assignor to Baker Oil Tools, Inc., Huntington Park, Calif. Filed July 13, 1929. No. 1,819,668.

**Collapsible bit** — John C. Stokes, Houston, Tex., assignor to Reed Roller Bit Co., same place. Filed Apr. 25, 1927. No. 1,819,798.

**Drill-bit**—John C. Stokes, Houston, Tex. Filed Oct. 19, 1929. No. 1,819,850.

**Safety casing-head for oil wells**—Marion S. Cunningham, Dallas, Tex. Filed May 24, 1930. No. 1,819,875.

**Electrical process and apparatus for the determination of the nature of the geological formations traversed by drill holes**—Conrad Schlumberger, Paris, France. Filed June 6, 1929. No. 1,819,923.

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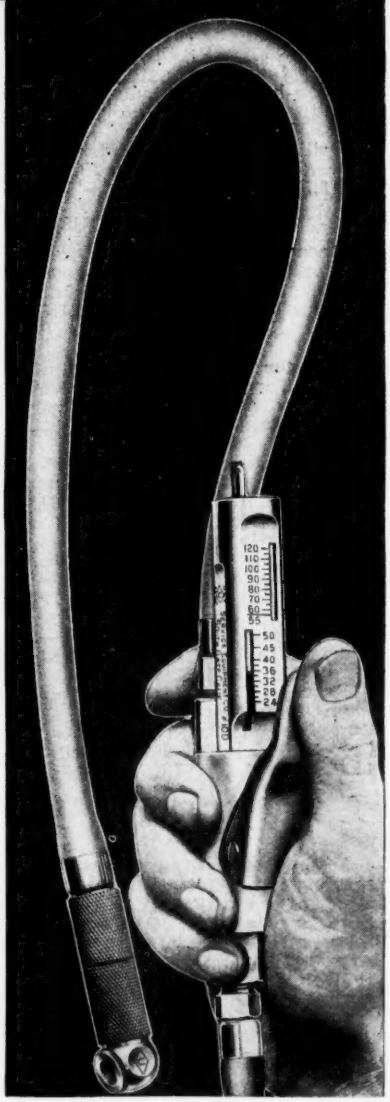

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